



BIHAR ECONOMIC SURVEY 2019-20



FINANCE DEPARTMENT
GOVERNMENT OF BIHAR

Government of Bihar
Finance Department

Economic Survey
2019 - 20



Message

The vision of the State Government has been growth with justice. Under the Saat Nishchay of the State Government, some of the major areas of achievements are availability of electricity in every household, piped clean drinking water supply to every house, ghar tak pakki Gali-Nali, toilet in every house, increasing the number of institutions of higher education and economic empowerment of youth by providing financial assistance to youth for higher education and entrepreneurship and women empowerment through 35% reservation for women in Government jobs. The State Government has recently launched an ambitious programme to address issues related to Global warming and Climate Change called Jal-Jeevan-Hariyali Abhiyan.

The Economic Survey reflects our inclusive development process in Bihar. This Survey primarily intends to inform the citizens and concerned professionals about Bihar's economy and I hope they find this document useful.

(Nitish Kumar)

SUSHIL KUMAR MODI
Finance Minister, Bihar



PATNA

Message

The development story of Bihar has been a continuous one, thanks to the policies of the State Government, particularly its management of the state finances. The Economic Survey records this story authentically. To make it more comprehensive, this year's Economic Survey has added two new chapters on environment and e-governance.

I would appreciate close attention of the readers while reading this report. And I very much hope that this report will help them analyse our development and growth, with most sought after information at their disposal. As in the past, I also make a request to all the readers to send their comments and suggestions which would enhance the quality of future Economic Surveys.

(Sushil Kumar Modi)

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GLOSSARY OF ABBREVIATIONS

AA	Alternative Analysis
AB-NHPMC	Ayushman Bharat National Health Protection Mission Council
ACP	Annual Credit Plan
ADB	Asian Development Bank
ADV	Advertisement Tax
AIBP	Accelerated Irrigation Benefit Programme
AIIMS	All India Institute of Medical Sciences
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
ANC	Ante-Natal Care
ANM	Auxiliary Nurse-Cum-Mid-wife
APEDA	Agriculture and Processed Food Products Exports Development Authority
APHC	Additional Primary Health Centres
AQMS	Air Quality Monitoring Stations
ARI	Acute Respiratory Infection
ASHA	Accredited Social Health Activist
ASI	Annual Survey of Industries
AT&C	Aggregate Technical and Commercial
ATMA	Agricultural Technology Management Agency
AVS	Anganwadi Vikas Samiti
AWC	Anganwadi Centers
AWH	Anganwadi Helper
AWW	Anganwadi Worker
BAAF	Bihar AADHAR Authentication Framework
BAPCC	Bihar State Action Plan for Climate Change
BBOSE	Bihar Board of Open Schooling Examination
BC	Backward Classes
BE	Budget Estimates
BELTRON	Bihar State Electronic Development Corporation
BEST	Bihar Easy School Tracking
BCC	Behaviour Change Communication
BDL	Below Detection Limit
BEPC	Bihar Education Project Council
BGREI	Bringing Green Revolution to Eastern India
BHIM	Bharat Interface for Money
BIADA	Bihar Industrial Area Development Authority
BLRS	Bonded Labour Rehabilitation Scheme
BMI	Body Mass Index
BMGF	Bill and Melinda Gates Foundation
BOD	Bio-chemical Oxygen Demand

BPSC	Bihar Public Services Commission
BSPCB	Bihar State Pollution Control Board
BREDA	Bihar Renewable Energy Development Agency
BRGF	Backward Region Grant Fund
BRJP	Bihar Rajya Jal Parishad
BRLP	Bihar Rural Livelihood Project
BRPNL	Bihar Rajya Pul Nirman Nigam Limited
BSDM	Bihar Skill Development Mission
BSDMA	Bihar State Disaster Management Authority
BSEB	Bihar State Electricity Board
BSEDC	Bihar State Electronics Development Corporation
BSHP	Bihar State Highways Project
BSHPC	Bihar State Hydroelectric Power Corporation
BSNL	Bharat Sanchar Nigam Limited
BSPCB	Bihar State Pollution Control Board
BSPGCL	Bihar State Power Generation Company Limited
BSPHCL	Bihar State Power (Holding) Company Limited
BSPTCL	Bihar State Power Transmission Company Limited
BSRDCL	Bihar State Road Development Corporation Limited
BSRTC	Bihar State Road Transport Corporation
BSSOCA	Bihar State Seed and Organic Certification Agency
BSWAN	Bihar State Wide Area Network
BSWC	Bihar State Warehousing Corporation
BTPS	Barauni Thermal Power Station
BTSC	Bihar Technical Service Commission
BUIDCO	Bihar Urban Infrastructure Development Corporation
CAGR	Compound Annual Growth Rate
CAMPA	Compensatory Afforestation Fund Management and Planning Authority
CBR	Crude Birth Rate
CCB	Central Co-operative Banks
CCS	Culturable Command Area
CCTNS	Crime and Criminal Tracking Network and Systems
CCPWC	Cyber-Crime Prevention against Women and Children
CD	Credit-Deposit
CDPO	Child Development Project Officer
CEA	Central Electricity Authority
CERT-IN	Indian Computer Emergency Response Team
CFMS	Comprehensive Financial Management System
CFC	Common Facility Centres
CGRC	Centralised Grievance Redressed Cell
CGST	Central Goods and Services Tax

CHC	Community Health Centres
CIDC	Construction Industry Development Council
CIMMYT	International Maize and Wheat Improvement Center
CIPET	Central Institute of Plastic Engineering and Technology
CLF	Cluster Level Federations
CLTS	Child Labour Tracking System
CMRF	Chief Minister Relief Fund
CMP	Comprehensive Mobility Plan
CMR	Child Mortality Rate
CNG	Compressed Natural Gas
CoC	Champions of Change
COMFED	Bihar State Milk Co-Operative Federation Limited
CPI	Consumer Price Index
CRF	Central Road Fund
CSC	Community Service Centre
CSC	Citizen Service Centre
CSO	Central Statistical Organisation
CSP	Customer Service Point
CSR	Corporate Social Responsibility
C&SRB	Communication & services related to broadcasting
CSSM	Centrally Sponsored and State Managed
CSS	Centrally Sponsored Scheme
CTMIS	Comprehensive Treasury Management Information System
CWC	Central Warehousing Corporation
DAY-NULM	Deendayal Antyodaya Yojana - National Urban Livelihoods Mission
DBT	Direct Beneficiary Transfer
DCMS	Document Case Management System
DDUGJY	Deen Dayal Upadhyaya Gram Jyoti Yojana
DEAS	Double Entry Accounting System
DGT	Directorate General of Training
DIC	District Industries Centre
DIKSHA	Digital Saksharta Abhiyan
DPR	Detailed Project Report
DR	Disaster Response
DSLAM	Digital Subscriber Line Access Multiplexers
DSR	Demand Side Response
EAP	Externally Aided Project
EBC	Extremely Backward Classes
ECCE	Early Childhood Care and Education
ED	Electricity Duty
EDGI	E-Government Development Index

EDP	Entrepreneurs Development Programmes
EGWUS	Electricity, gas, water supply & other utility services
EMM	Equipment Maintenance and Management System
ENT	Entertainment Tax
EPC	Engineering, Procurement and Construction
EPI	Expanded Programme of Immunization
ERSS	Emergency Response Support System
ESIC	Employees' State Insurance Corporation
ESTP	Employment through Skill Training and Placement
ET	Tax on Entry of Goods
FDDI	Footwear Design and Development Institute
FESO	Fishery Extension Services Officer
FFM	Flood Forecast Model
FISEP	Financial Inclusion and Self-Employment Programme
FMCG	Fast-Moving Consumer Goods
FMIS	Forest Management Information System
FPII	Faster Payments Innovation Index
FRBM	Fiscal Responsibility and Budget Management
FTH	Fiber to Home
GCA	Gross Cropped Area
GeM	Government e-Marketplace
GFD	Gross Fiscal Deficit
GIA	Gross Irrigated Area
GPMS	Gram Panchayat Management System
GSDP	Gross State Domestic Product
GST	Goods and Services Tax
GSTN	Goods and Services Tax Network
GSVA	Gross State Value Added
GTSNY	Gramin Tola Sampark Nishchay Yojana
GVO	Gross Value of Output
HCI	Human Capital Index
HFA	Housing for All
HLT	Taxation on Luxuries in Hotel
HRIDAY	Heritage City Development and Augmentation Yojana
HRMS	Human Resource Management System
HT	High Tension
HUDCO	Housing and Urban Development Corporation
HSPI	Health System Progress Tracker
IAMC	Industrial Area Management Committee
IAP	Integrated Action Plan
IBC	Insolvency and Bankruptcy Code
ICAR	Indian Council of Agricultural Research

ICD	Investment Plus Credit to Deposit
ICDS	Integrated Child Development Services
IED	Institute of Entrepreneurship Development
IFAD	International Fund for Agricultural Development
IGAS	Indian Government Accounting Standard
IGMSY	Indira Gandhi Matritva Sahyog Yojana
IGNOU	Indira Gandhi National Open University
IGST	Inter-State Goods and Service Tax
IHHL	Individual Household Latrine
IL&FS	Infrastructure Leasing and Financial Services
IMFL	Indian-made Foreign Liquor
IMPS	Immediate Payment Service
IMR	Infant Mortality Rate
IPCC	Intergovernmental Panel on Climate Change
IPDS	Integrated Power Development Scheme
IPDS	In-patient Department
IPPB	India Post Payments Bank
ISBT	Interstate Bus Terminus
ISDP	Integrated Disease Surveillance Programme
ICT	Information and Communication Technology
ITI	Industrial Training Institutes
JE	Japanese Encephalitis
JICA	Japan International Cooperation Agency
JOCODE	Judicial Officer Code
JSY	Janani Suraksha Yojana
KBUNL	Kanti Bijlee Utpadan Nigam Limited
KCC	Kisan Credit Card
KGBV	Kasturba Gandhi Balika Vidyalaya
KHPS	Kosi Hydrel Power Station
KVIC	Khadi and Village Industries Commission
KLPD	kilo litres per day
KVK	Krishi Vigyan Kendra
KYP	Kushal Yuva Program
LEB	Life Expectancy at Birth
LFPR	Labour Force Participation Rate
LPS	Low Performing States
LS	Lady Supervisor
LSBA	Lohiya Swachh Bihar Abhiyan
LT	Low Tension
LWE	Left-Wing Extremists
MBS	Maternity Benefit Scheme
MCM	Million Cubic Metre

MCS	Micro Credit Scheme
MDF	Moderately Dense Forest
MDMS	Mid-Day Meal Scheme
MDR	Major District Road
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MI	Mission Indradhanush
MKUY	Mukhya Mantri Kanya Uthan Yojna
MMGSY	Mukhya Mantri Gram Sampark Yojana
MMR	Maternal Mortality Rate
MMSNY	Mukhyamantri Setu Nirman Yojana
MMVSNY	Mukhyamantri Vidyut Sambandh Nishchay Yojana
MNRE	Ministry of New and Renewable Energy
MPI	Multidimensional Poverty Index
MSDE	Ministry of Skill Development and Entrepreneurship
MSDG	Mobile e-Governance Service Delivery Gateway
MSDP	Multi-Sectoral Development Programme
MSME	Micro, Small and Medium Enterprises
MV	Mamidipudi Venkatarangaiya
MWCD	Ministry of Women and Child Development
NABARD	National Bank for Agriculture and Rural Development
NBFC	Non-Banking Financial Companies
NBPDCL	North Bihar Power Distribution Company Limited
NCAP	National Clean Air Programme
NDDB	National Dairy Development Board
NDPS	Narcotic Drugs and Psychotropic Substances
NeGP	National e-Governance Plan
NFHS	National Family Health Survey
NGN	Next Generation Network
NH	National Highway
NHDP	National Highways Development Project
NHM	National Health Mission
NIELIT	National Institute of Electronic and Information Technology
NIOS	National Institute of Open Schooling
NMCG	National Mission for Clean Ganga
NMR	Neo-Natal Mortality Rate
NNM	National Nutrition Mission
NOFN	National Optical Fiber Network
NOS	National Open School
NPA	Non-Performing Assets
NPCI	National Payments Corporation of India
NPK	Nitrogen, Phosphate and Potash

NP-NSPE	National Programme of Nutritional Support to Primary Education
NRDWP	National Rural Drinking Water Supply Programme
NRHM	National Rural Health Mission
NRLM	National Rural Livelihood Missions
NSA	Net Sown Area
NSDA	National Skill Development Agency
NSDC	National Skill Development Corporation
NSDG	National e-Governance Service Delivery Gateway
NSDM	National Skill Development Mission
NSDP	Net State Domestic Product
NSQC	National Skills Qualifications Committee
NSQF	National Skills Qualifications Framework
NSSF	National Small Savings Fund
NSSO	National Sample Survey Organisation
NUHM	National Urban Health Mission
OAE	Own Account Enterprises
OD	Open Defecation
ODF	Open Defecation-Free
OFC	Optical Fiber Cable
OF	Open Forest
O-GRAS	Online Government Revenue and Accounting Management System
OSI	Online Service Index
OOSC	Out-of-School Children
OPD	Outpatient Department
OPHI	Oxford Poverty and Human Development Initiative
OPRMC	Output and Performance Based Road Maintenance Contract
OPWD	Other Public Works Departments
OWRC	Overseas Workers Resource Centre
P	Provisional
PACS	Primary Agricultural Credit Societies
PCA	Prompt Corrective Action
PCDE	Per Capita Development Expenditure
PDS	Public Distribution System
PFC	Power Finance Corporation
PFMS	Public Finance Management System
PHC	Primary Health Centers
PHED	Public Health Engineering Department
PIA	Project Implementation Agencies
PM	Particulate Matters
PMAY-G	Pradhan Mantri Awas Yojana-Gramin
PMRCI	Patna Metro Rail Corporation Ltd

PMEGP	Prime Minister's Employment Generation Programme
PMKSY	Pradhan Mantri Krishi Sinchai Yojna
PMGSY	Pradhan Mantri Gram Sadak Yojana
PMJDY	Pradhan Mantri Jan-Dhan-Yojana
PMJJBY	Pradhan Mantri Jeevan Jyoti Bima Yojana
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
PMMVY	Pradhan Mantri Matri Vandana Yojana
PMMY	Pradhan Mantri Mudra Yojana
PMR	Peri-Natal Mortality Rate
PMSBM	Pradhan Mantri Suraksha Bima Yojana
POB	Post Office Bank
PoP	Point of Presence
POSCO	Protection of Children from Sexual Offences
POSHAN	Prime Minister Overarching Scheme for Holistic Nourishment
PPA	Power Purchase Agreements
PPP	Public-Private-Partnership
PRI	Panchayati Raj Institutions
PSE	Pre-School Education
PSS	Power Sub Stations
PT	Tax on Professions
PTR	Pupil Teacher Ratio
Q	Quick
RBI	Reserve Bank of India
RCH	Reproductive and Child Health
RE	Revised Estimates
REID&PS	Real Estate, ownership of Dwelling & Professional Services
RFA	Recorded Forest Area
RIDF	Rural Infrastructure Development Fund
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RNTCP	Revised National Tuberculosis Control Programme
ROB	Rail Over Bridges
RPL	Recognition of Prior Learning
RRB	Regional Rural Banks
RRP	Road Requirement Plan
RSETI	Rural Self-Employment Training Institutes
RTD	Recruit-Train-Deploy
RTE	Right to Education
RTPS	Real Time Processing System
RUDSETI	Rural Development and Self-employment Training Institute
RUSA	Rashtriya Uchchar Shiksha Abhiyan
SAG	Scheme for Adolescent Girls

SAMIS	Student Attendance Management Information System
SAPFIN	Financial Framework for State Action Plan on Climate Change
SAPCC	State Action Plan on Climate Change
SAUBHAGYA	Sahaj Bijli Har Ghar Yojana
SBD	Standard Bidding Document
SBM	Swachh Bharat Mission
SBPDCL	South Bihar Power Distribution Company Limited
SC	Sub-Centers
SC	Scheduled Caste
SCB	Scheduled Commercial Banks
SCERT	State Council of Education Research and Training
SDC	Skill Development Centers
SDC	State Data Centres
SDG	Sustainable Development Goals
SDMS	Skill Development Management System
SECC	Socio-economic and Caste Census
SFC	State Food and Civil Supplies Corporation
Sec-LAN	Secretariat Local Area Networks
SEITRA	Smart Energy Infrastructure and Revenue Administration
SFRTI	Scheme of Fund for Regeneration of Traditional Industries
SGST	State Goods and Services Tax
SH	State Highway
SHA	State Health Agency
SHG	Self Help Groups
SHG-BLP	SHG-Bank Linkage Programme
SIPB	State Investment Promotion Board
SJVNL	Satluj Jal Vidyut Nigam Limited
SKCC	Sapno Ko Chali Chhooney
SLBC	State Level Bankers' Committee
SMID	Social Mobilisation and Institutional Development
SNP	Supplementary Nutrition Programme
SOC	Soil Organic Carbon
SOULS	Solar Urja through Localization for Sustainability
SPARROW	Smart Performance Appraisal Report Recording Online Window
SPV	Special Purpose Vehicle
SRI	System of Rice Intensification
SRR	Seed Replacement Rate
SS	Samagra Shiksha
SSA	Sarva Shiksha Abhiyan
SSDG	State e-Governance Service Delivery Gateway
SSGS	Special State Government Securities

STPI	Software Technology Park of India
SUH	Shelter for Urban Homeless
SSC	Sector Skills Council
SUSV	Support to Urban Street Vendors
SWAN	State Wide Area Network
TDS	Tax Deducted at Source
TE	Teacher Education
TII	Telecommunications Infrastructure Index
TFR	Total Fertility Rate
TRFA	Targeting Rice Fallow Areas
TSC&S	Transport, Storage, Communication & Services related to broadcasting
TVC	Town Vending Committees
U5MR	Under-Five Mortality Rate
UDAN	Ude Desh Ka Aam Naagrik
UDAY	Ujjwal DISCOM Assurance Yojana
UIP	Ultimate Irrigation Potential
UNAE	Unincorporated Non-Agricultural Enterprises
UNCRC	United Nations Convention on the Rights of the Child
UNDP	United Nations Development Programme
UPI	Unified Payments Interface
USO	Universal Service Obligation
VAT	Value Added Tax
VC	Video Conferencing
VDF	Very Dense Forest
VLE	Village Level Entrepreneur
VO	Village Organisations
VTR	Valmiki Tiger Reserve
WBM	Water Bound Macadam
WDC	Women Development Corporation
WHO	World Health Organisation
WPI	Wholesale Price Index
WPR	Worker Population Ratio
ZP	Zila Parishad

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TECHNICAL NOTES

CHAPTER-I : BIHAR ECONOMY : AN OVERVIEW

Constant Prices : Constant prices adjust for the effects of inflation ,while computing GSDP. Use of constant prices enables measurement of the actual change in output , correcting for the effects of inflation. Generally, a base year is identified for constant price estimates of income.

Consumer Price Index (CPI) : CPI is a measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food, medical care. It is calculated by taking price changes for each item in the predetermined basket of goods and averaging them with appropriate weight.

Gross State Domestic Product (GSDP) : GSDP is defined as a measure, in monetary terms, of the volume of all final goods and services produced within the boundaries of the State during a given period of time .

Gross State Value Added (GSVA) : Value of output minus cost of inputs is the value added by a production unit. GSVA is the sum of value added for all final goods and services. GSDP is GSVA plus subsidies, minus taxes.

Per Capita Income (PCI) : PCI or average income measures the average income earned per person in a given area in a specified year. It is calculated by dividing the area's total income by its total population.

Wholesale Price Index (WPI) : WPI is used to measure the average change in price of the sale of goods and services, when transactions are made in bulk by the wholesalers.

CHAPTER-II : STATE FINANCES

Capital and Revenue Accounts : Capital accounts include those transactions of the State Government which have long term implication. For example, borrowing is a capital receipt, and investment on road is a capital expenditure. On the other hand, revenue accounts include those transactions that have implications only for the current year. For example, collections under GST (revenue receipt) and payment of salary (revenue expenditure).

Direct and Indirect Tax : Direct taxes are taxes where the burden of tax falls on the person on whom it is levied (for example, taxes on income or wealth). In case of indirect taxes, the incidence of tax is usually not on the person who pays the tax. For example, sales taxes , which is paid by the seller, but paid by the buyer.

Fiscal Deficit : The excess of total expenditure over total non-borrowed receipts is called the fiscal deficit.

Primary Deficit : The primary deficit is the revenue deficit, minus the interest payments. It denotes government's deficit, without taking into account liabilities created in the past.

Public Debt : Public debt receipts and disbursements are borrowings and repayments during the year, respectively. The difference between borrowings and repayments in a year is the net accretion to the public debt.

Ways and means advance (WMA) : One of RBI's roles is to serve as banker to both central and state governments. In this capacity, RBI provides temporary support to tide over mismatches in their receipts and payments in the form of ways and means advances.

CHAPTER-III : AGRICULTURE AND ALLIED SECTOR

Artificial Insemination : The mechanical injection of male semen into the womb of the female with a special syringe-like apparatus. The process begins with the collection of semen from the male. This method is used extensively in dairy husbandry.

Barren and Unculturable Land : Land which cannot be brought under cultivation except at an exorbitant cost is classified as unculturable, whether such land is in isolated blocks or within cultivated holdings.

Certified Seed : The seed grown from a pure stock which meets the standards of certifying agency (usually a state government agency). The certification of seeds is based on germination rate, freedom from weeds and disease, and trueness to variety.

Culturable Waste Land : This includes land available for cultivation, but not cultivated during the last five years or more in succession including the current year for some reason or the other. Such land may be either fallow or covered with shrubs and jungles which are not put to any use.

Current Fallows : This represents cropped area which is kept fallow during the current year.

Gross Cropped Area (GCA) : This represents the total area sown once, and those areas sown more than once in a particular year. For areas sown more than once, they are counted as many times as they are sown.

Gross Irrigated Area (GIA) : It is the total area under crops, irrigated either once or more than once in a year. For areas irrigated more than once, they are counted as many times as they are irrigated.

Land under Miscellaneous Tree Crops : This includes all cultivable land which is not included in 'Net area sown' but is put to some agricultural use.

Net Area Sown (NSA) : This represents the total area sown with crops and orchards. Area sown more than once in the same year is counted only once.

Net Irrigated Area (NIA) : It is the total area irrigated through any source in a year , irrespective of the number of times it is irrigated.

System of Rice Intensification (SRI) : The System of Rice Intensification is a low water, labor-intensive method that uses younger seedlings singly-spaced and typically hand-weeded with special tools, aimed at increasing the yield of rice production.

Zero-Tillage: Zero-tillage (also No-tillage) is a practice in which the crop is sown directly into soil not tilled since the harvest of the previous crop. It is typically practised in arable areas where fallowing is important.

CHAPTER-IV : ENTERPRISES SECTOR

Capital-intensive industries : An industry which requires substantial amount of physical capital to produce goods and services.

Household Enterprise : A household enterprise is one which is run by one or more members of a household, irrespective of whether the enterprise is located on the premises of the household or not.

Own-account Enterprise (OAE) : An enterprise which is run without any hired worker employed on a fairly regular basis, is termed as an own-account enterprise.

Unincorporated non-agricultural enterprises : This includes non-agricultural enterprises which are 'not incorporated' (i.e. not registered under Companies Act, 1956). The domain of

‘unincorporated enterprises’ excluded : (a) enterprises registered under Sections 2m (i) and 2m (ii) of the Factories Act, 1948 or beedi and cigar manufacturing enterprises registered under Beedi and Cigar Workers (Condition of Employment) Act, 1966, (b) government/public sector enterprises, and (c) cooperatives. Thus, the coverage is restricted primarily to all household proprietary and partnership enterprises. In addition, Self Help groups (SHGs), Private Non-Profit Institutions (NPIs) including Non-Profit Institutions Serving Households (NPISH) and Trusts all also covered under OAE.

CHAPTER-V : LABOUR, EMPLOYMENT AND MIGRATION

Child Labour : Child labour is defined as the work that deprives children of their childhood, their potential and their dignity, and harm their physical and mental development.

Labour Force Participation Rate (LFPR) : Labour Force includes all workers, either employed or unemployed. LFPR is the number of persons in labour force as a percentage of total population.

Unemployment Rate (UR) : UR is defined as the percentage of persons unemployed.

Worker Population Ratio (WPR) : WPR is defined as the percentage of employed persons in the population.

CHAPTER-VII : ENERGY SECTOR

Conventional Energy : Conventional energy is the energy obtained from source which are fixed in nature like oil, gas and coal.

Non-Conventional energy : Non-conventional energy includes energy from wind, tides, sun, geothermal heat and biomass. The energy supply from these sources are unlimited.

Peak Demand : Peak demand is used in energy demand management describing a period in which electrical power is expected to be provided for a sustained period at a significantly higher than average supply level.

Transmission and Distribution loss (T&D) : T&D loss is the loss of energy during its transmission from the point of generation to the point of billing. This is calculated for a period of time, generally a year.

CHAPTER-VIII : RURAL DEVELOPMENT

System of Wheat Intensification (SWI) : SWI is a new wheat cultivation technique aimed to increase productivity of wheat crop using the principles of system of rice intensification.

CHAPTER-IX : BANKING AND ALLIED SECTORS

Credit Deposit Ratio (CD Ratio) : It is the ratio of how much a bank lends out of the deposits it has mobilized in a particular State.

Non-Performing Asset (NPA) : A non performing asset is a loan or advance for which the principal or interest payment has remained overdue for a period of at least 90 days.

Repo Rate : It is the rate at which the Reserve Bank of India lends money to commercial banks in the event of any shortfall of funds.

CHAPTER-XI : HUMAN DEVELOPMENT

Crude Birth Rate (CBR) : CBR is defined as the number of live births per 1000 population.

Infant Mortality Rate (IMR) : IMR indicates the number of children dying before the age of one year per 1000 live births.

Life Expectancy at Birth (LEB) : LEB reflects the average number of years a newly born is expected to survive under the current schedule of mortality.

Maternal Mortality Rate (MMR) : MMR is the number of registered maternal deaths due to birth or pregnancy-related complications per 100,000 live births.

Neo-Natal Mortality Rate (NMR) : NMR denotes the number of children dying during the first 28 days of their birth, per 1000 children.

Peri-Natal Mortality Rate (PMR) : PMR indicates stillbirths and deaths in the first week of life per 1000 live and stillbirths.

Slipped-back Habitations : It includes those habitations which were fully covered for water supply at one time, but have slipped back partially or not-covered in the current year.

Total Fertility Rate (TFR) : TFR refers to the total number of children born or likely to be born to a woman of child-bearing age in her lifetime.

Under-five Mortality Rate (U5MR) : It is the number of children dying between birth and exactly five years of age per 1000 live births.

CHAPTER-XII : CHILD DEVELOPMENT

Stunting (height-for-age) : Is a measure of linear growth retardation and cumulative growth deficits. Children whose height-for-age score is below minus two standard deviations (-2 SD) from the median of the reference population are considered short for their age (stunted), or chronically undernourished. Children who are below minus three standard deviations (-3 SD) are considered severely stunted.

Underweight (weight-for-age) : This is a composite index of height-for-age and weight-for-height. It takes into account both acute and chronic under-nutrition. Children whose weight-for-age score is below minus two standard deviations (-2 SD) from the median of the reference population are classified as underweight. Children whose weight-for-age score is below minus three standard deviations (-3 SD) from the median are considered severely underweight.

Wasting (weight-for-height) : It measures the body mass in relation to body height and describes current nutritional status. Children with score less than minus two standard deviations (-2 SD) from the median of the reference population are considered thin (wasted), or undernourished. Children with weight-for-height score less than minus three standard deviations (-3 SD) from the median of the reference population are considered severely wasted.

CHAPTER-XIII : ENVIRONMENT AND CLIMATE CHANGE

Bio-chemical Oxygen Demand (BOD) : The amount of dissolved oxygen used by microorganisms in the biological process of metabolizing organic matter in water.

Carbon Dioxide (CO₂) : A colourless, odourless, nonpoisonous gas that results from fossil fuel combustion and is normally a part of the ambient air.

Carbon Stock : Forest carbon stock is the amount of carbon that has been sequestered from the atmosphere and is now stored within the forest ecosystem, mainly within living biomass and soil, and to a lesser extent also in dead wood and litter.

Chemical Oxygen Demand (COD) : A measure of the oxygen required to oxidize all compounds in water, both organic and inorganic.

Crown Density : The density tells us the amount of plant material, such as leaves, branches, and fruit, that block skylight from shining through the tree crown. It is measured as the percent of total light that is blocked by tree material.

Dead Organic Matter : This carbon pool contains all non-living woody biomass and can be divided into two components – wood (fallen trees, roots and stumps with diameter over 10cm) and litter (greater than 2mm and less than 10cm diameter) .

Dissolved Oxygen : The oxygen freely available in water; vital to fish and other aquatic life. It is the concentration of oxygen dissolved in water, expressed as milligrams per liter or as a percent of saturation.

Faecal Coliform : Bacteria found in the intestinal tracts of mammals. Their presence in water or sludge is an indicator of pollution and possible contamination by pathogens.

Fluoride : Gaseous, solid, or dissolved compounds containing fluorine that result from industrial processes; Excessive Fluoride amounts in food can lead to fluorosis.

Forest Cover : This includes all lands, more than one hectare in area, with a tree crown density of more than 10 percent, irrespective of ownership and legal status. Such lands may not necessarily be a recorded forest area. It also includes orchards, bamboo and palm.

Nitrogen Dioxide (NO₂) : Products of combustion from transport and stationary sources and major contributors to acid deposition and the formation of ground-level ozone in the troposphere.

Particulate Matter : Fine solid or liquid particles that pollute the air and are added to the atmosphere by natural and man-made processes at the earth's surface. Examples of particulate matter include dust, smoke, soot, pollen and soil particles.

Protected Forest : An area notified under the provisions of the Indian Forest Act or other State Forest Acts, having limited degree of protection. In protected forest, all activities are permitted, except those specifically prohibited.

Reserved Forest : An area constituted under the provisions of the Indian Forest Act or other State Forest Acts, having full degree of protection. In reserved forests, all activities are prohibited, unless specially permitted.

River Basin : The portion of land drained by a river and the streams that flow into it. The quality of a river basin affects the quality of water, so efforts to protect and improve water quality must often include plans for managing river basins.

Soil Organic Carbon : It is a measurable component of soil organic matter. Soil Organic Matter is the organic component of soil, containing small plants residues, small living soil organism and decomposed organic matter.

Sulphur Dioxide (SO₂) : A corrosive gas produced by the burning of fuels, such as coal and oil, that contain sulphur. It is also produced from sea spray, organic decomposition and volcanic eruptions.

CHAPTER-XIV : E-GOVERNANCE

E-Government Development Index (EGDI) : The EGDI is a composite index based on the weighted average of three normalized indices. One-third is derived from a Telecommunications Infrastructure Index (TII), one-third from a Human Capital Index (HCI) and one-third from the Online Service Index (OSI) which assesses e-government development at the national level.

LAN : Local Area Network is a computer network that spans a relatively small area. Most often, a LAN is confined to a single room, building or group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves.

WAN : Wide Area Network is a telecommunications network that extends over a large geographical area for the primary purpose of computer networking. WAN is often established with leased telecommunication circuits.

EXECUTIVE SUMMARY

CHAPTER-I : BIHAR ECONOMY : AN OVERVIEW

1. Bihar has experienced consistent socio-economic development over the last decade, despite limited availability of financial resources. According to the new series of data on Gross State Domestic Product (GSDP), the growth rate of Bihar's economy in 2018-19 was 10.53 percent (at constant prices) and 15.01 percent (at current prices), which is higher than the growth rate for the Indian economy.
2. The GSDP of Bihar at current prices was Rs 5,57,490 crore at current prices and Rs 3,94,350 crore at constant (2011-12) prices in 2018-19. The NSDP for the state in 2018-19 was Rs 5,13,881 crore at current prices and Rs 3,59,030 crore at constant prices. The resulting Per Capita GSDP of Bihar was Rs 47,541 at current prices and Rs. 33,629 at constant prices.
3. The share of Primary, Secondary and Tertiary sectors in the GSVA was 21.3, 19.7 and 59.0 percent, respectively. Within the Secondary sector, Construction and Manufacturing are major contributors to the GSVA and their shares were 9.5 and 8.2 percent respectively in 2018-19 and these shares have remained almost unchanged in the last five years. The contribution of the overall Secondary sector has remained between 19 and 20 percent during 2013-14 to 2018-19. In the Tertiary sector, major contributors to GSVA were — Trade & Repair services (18.2 percent), and Real Estate, Ownership of Dwelling and Professional Services (9.1 percent). The share of overall Tertiary sector in GSVA has increased between 2012-13 to 2018-19.
4. There is a considerable disparity across the districts within the state in terms of socio-economic development, as evident from the various indicators. The three relatively most prosperous districts based on Petrol consumption per thousand persons are — Patna, Muzaffarpur, Gopalganj. The three most prosperous districts in terms of per capita small savings are — Patna, Saran and Buxar.

CHAPTER-II : STATE FINANCES

1. The management of the state finances in Bihar in 2018-19 has adhered to the resolutions of the Bihar Fiscal Responsibility and Budget Management Act, 2006. The fiscal deficit was 2.68 percent of GSDP, revenue surplus 1.34 percent of GSDP and the outstanding public debt liability of the State Government was 32.34 percent of GSDP during the year.

2. Given the limited revenue receipt from its own sources, the State Government has been dependent on the central transfers and the grants for resources. These transfers are mostly as per the recommendations of the Finance Commission. The 15th Finance Commission has submitted its report for the year 2020-21. As per its recommendation, the share of Bihar in the total shareable resource pool of the centre has increased from 9.67 percent to 10.06 percent for the year 2020-21.
3. In an attempt to improve the efficiency in financial management, the State Government has introduced Comprehensive Financial Management System (CFMS) on April 1, 2019, which will make all financial activities in the state online and paperless. In another development in 2018-19, the State Government made it mandatory for all the departments to make all the purchases through the GeM Portal.
4. The total revenue receipt of Bihar in 2018-19 was Rs 1,31,793 crore and capital receipt Rs 20,494 crore. The revenue expenditure and the total expenditure in the state were Rs 1,24,897 crore and Rs 1,54,655 crore respectively. The revenue receipt increased by 12.2 percent, whereas the revenue expenditure increased by 21.7 percent in 2018-19 over the previous year. The capital expenditure decreased by 12.0 percent to Rs 29,759 crore during the same period.
5. The receipt from the tax revenues increased by Rs 14,791 crore in 2018-19 to reach Rs 1,03,011 crore, which is 16.8 percent higher than the previous year and the non-tax revenue was Rs 4,131 crore during 2018-19, after an increase of 17.8 percent over the previous year. The receipts under Grants-in-Aid and contributions from the Central Government declined to Rs 24,652 crore in 2018-19. The SGST and IGST revenue collected by the state was Rs 17,861 crore in 2018-19. The revenue from IGST was about 58 percent of the total revenue collected from GST for the state.
6. The share of revenue expenditure in total expenditure has increased to 80.8 percent in 2018-19 from 75.2 percent in 2017-18. Correspondingly, the share of capital expenditure has declined from 24.8 percent in 2017-18 to 19.2 percent in 2018-19. Out of the total expenditure of Rs 1,54,655 crore, the developmental expenditure was Rs 1,07,737 crore (69.7 percent). The expenditure by the State Government on salary and pension has grown by 12.2 percent in 2018-19 over the previous year to reach Rs 35,996 crore.
7. In 2018-19, the total expenditure on General Services, Social Services and Economic Services increased to Rs 38,691 crore, Rs 58,284 crore and Rs 27,918 crore, respectively. The growth rates observed in expenditure under these heads over the previous year are 15.9, 27.3 and 18.9 percent, respectively.

8. In 2018-19, the share of social services expenditure in total expenditure increased by two percentage points, whereas the share of economic services and general services expenditures declined by one percentage point each. The social services expenditure increased by 27.3 percent to Rs 58,284 crore in 2018-19 over the previous year. The expenditure on three major heads of the social services were — Rs. 28,080 crore (Education, Sports, Art and Culture), Rs. 7318 crore (Health and Family Welfare) and Rs. 15,638 crore (Water Supply, Sanitation, Housing and Urban Development). The growth in expenditure for these three components was 13.1, 18.4 and 105.5 percent, respectively, over the previous year.
9. The outstanding liability of the State Government was Rs 1,68,921 crore at the end of 2018-19, which is 7.7 percent higher than the outstanding liability for the previous year. The public debt accounted for 74.7 percent of the total outstanding liability of the state, and the remaining 25.3 percent of the outstanding liability comprises Small Savings, Provident Fund, Reserve Funds, and Deposits and Advances.
10. The total borrowing by the State Government in 2018-19 was Rs 18,668 crore, compared to Rs 13,169 crore in 2017-18 and Rs 21,577 crore in 2016-17. In a significant development, there was an increase of 55.4 percent from the previous year in the repayment of public debt by the State Government during 2018-19. The repayment of public debt was Rs 7230 crore in 2018-19, compared to Rs 4654 crore in 2017-18.
11. Bihar maintained a lower GFD of Rs 13,807 crore in 2018-19, compared to Rs 14,305 crore in 2017-18. The share of net borrowing in financing GFD was 82.0 percent in 2018-19, whereas the net balance of public account contributed only 18.0 percent.

CHAPTER-III : AGRICULTURE AND ALLIED SECTORS

1. The contribution of agricultural and allied sectors to the Bihar's GSVA was 21 percent in 2017-18 and the share of crop sector in the GSVA was 12.1 percent. Total expenditure on agriculture and allied sectors in the state increased from Rs. 3615 crore in 2014-15 to Rs. 5176 crore in 2018-19.
2. The gross cropped area in Bihar was 75.25 lakh hectares and the cropping intensity was 144 percent in 2017-18.
3. The production of cereals increased from 143.21 lakh tonnes in 2017-18 to 158.58 lakh tonnes in 2018-19. Within cereals, rice and wheat together contributed more than 70 percent of the total gross cropped area.
4. The Government of India has conferred the Krishi Karman Award to the state on 2nd January 2020, for its achievements in production and productivity of Maize and Wheat.

5. Livestock and aquaculture together contributed about 7.1 percent of GSVA in the agriculture sector in Bihar during 2018-19. To increase fish production in the state, about 9286.5 lakh fish seeds was distributed in 2018-19. The fish farmers have started exporting fish to the tune of 30,000 MT to the neighbouring states and Nepal.
6. Egg production has increased from 111.17 crore in 2016-17 to 176.34 crore in 2018-19. The tentative figure for 2019-20 is 265 crore eggs. With this, the per capita egg production in the state has increased from 11 in 2016-17 to 25 in 2019-20.
7. In 2018-19, a total of Rs. 229.93 crore was sanctioned as electricity subsidy for the cultivators by the energy department. Further, the diesel subsidy was Rs. 263.60 crore during 2018-19. The State Government has taken a new initiative to provide subsidy to the extent of 80 percent on machinery used for crop residue management.
8. The total expenditure on irrigation development increased from Rs. 854.17 crore in 2013-14 to Rs. 1328.43 crore in 2018-19, recording an annual growth rate of 11.4 percent. The State Government is providing subsidy of 90 percent on drip irrigation and 75 percent on sprinkler irrigation.

CHAPTER-IV : ENTERPRISES SECTOR

1. In Bihar, the relation between annual growth rate of the secondary sector and GSDP has been rather moderate. However, the state has performed remarkably well in the secondary sector, particularly in providing electricity, gas, water supply, and other utility services (EGWUS) in the recent past. The growth rate of EGWUS has been consistently positive in recent years and appreciably high in some years.
2. The annual growth rate of operational agro-based factories in Bihar was 16.4 percent over the last 10 years, compared to only 3.3 percent at the all-India level.
3. The performance of unincorporated non-agricultural enterprises (UNAEs) has been particularly impressive in Bihar. The GVA per worker in own-account enterprises (OAEs) within the manufacturing sector in Bihar was Rs 71 thousand, almost 54 percent higher than the all-India average (Rs 46 thousand). Similarly, GVA per worker in OAEs in trade was Rs 94 thousand, again 7 percent more than the all-India average (Rs 88 thousand). The ratio of GVA to fixed assets of UNAEs in Bihar was also higher than the national average.
4. In 2017-18 and 2018-19, a sum of Rs. 742.54 crore has been invested in food processing industries, the highest among all the industries classified under 'High Priority Sector.' To facilitate industrialisation in the state, several important reforms have been carried out by the State Government.

5. In Bihar, 11 sugar mills are presently operating spread across six districts. In 2018-19, 810.17 lakh quintals of sugarcane were crushed to produce 84.02 lakh quintals of sugar. Between 2017-18 and 2018-19, sugar production has increased by 17.4 percent in the state. Moreover, the recovery rate improved from 9.57 percent in 2017-18 to 10.37 percent in 2018-19.
6. In 2018-19, COMFED has inducted more societies in Supaul Milk Union in Bihar and Bokaro Dairy in Jharkhand. The number of organised societies under the COMFED increased by 9.4 percent, from 20,997 in 2017-18 to 22,971 in 2018-19. The daily milk collection across all dairies registered a growth of 18.7 percent during the year.
7. The number of targeted beneficiaries of the Prime Minister's Employment Generation Programme (PMEGP) has gone up from 2850 in 2017-18 to 4348 in 2018-19, an increase of 52 percent. The financial allocation also increased from Rs 5653 lakh in 2017-18 to Rs 10,869 lakh in 2018-19, registering an increase of 93 percent.
8. The State Government has generously allocated funds to the Department of Tourism during the recent years, and the utilisation ratio has generally been high throughout this period. The Department of Tourism has undertaken various projects worth Rs 45.67 crore in 2018-19.

CHAPTER-V : LABOUR, EMPLOYMENT AND MIGRATION

1. The worker population ratio (WPR) for male workers in rural Bihar was 64.0 percent, about 8 percent lower than the all-India average. The WPR for female workers was abysmally low at 3.9 percent in rural Bihar. In Bihar, 55.9 percent males were self-employed in 2017-18. The share of casual labour in Bihar (32.1 percent) was significantly higher than the all-India level (24.3 percent).
2. Major employment-generating industries for working males in Bihar were — agriculture, forestry and fishing (44.6 percent), construction (17.1 percent), wholesale and retail trade, repair of vehicles (12.3 percent), and manufacturing (9.3 percent). For female workers, major employment-generating industries were — agriculture, forestry and fishing (53.6 percent), and education (25.7 percent).
3. In Bihar, 75 percent of total migration took place due to marriage, compared to 46 percent at the all-India level in 2011. Only 2.9 percent of total migration took place due to work/employment and business. Of the total number of people migrating due to work, employment and business, 76 percent were men.
4. The number of passports issued from the Regional Passport Office in Patna is more than 3 lakhs per year during 2015-16 to 2018-19. The highest number of applications for passport

was received in 2018-19 (348.3 thousand), while the highest (357.6 thousand) number of passports issued was in 2015-16 (357.6 thousand).

5. During the last five years, Rural Self Employment Training Institute (RSETI) has trained 1,38,104 candidates, of which 62,618 (45 percent) were male and 75,457 (54 percent) were female, and less than one percent were transgender. Of the total trained candidates, 74 percent obtained gainful employment in various economic activities. The financial institutions have financed 26 percent of the trained candidates, as part of various schemes.
6. The Bihar State Migrant Labour Accidental Grant Scheme, 2008 was implemented in all districts of Bihar. The quantum of compensation are — Rs. 1.00 lakh for death, Rs. 75.00 thousand for permanent absolute disability, and Rs. 37.50 thousand for permanent partial disability.

CHAPTER-VI : INFRASTRUCTURE

1. The physical infrastructure in Bihar has been strengthened considerably during the last decade. The growth in the transport sector was 11.0 percent during the period 2011-12 to 2018-19. The GSDP of the transport sector has increased from Rs. 11,236 crore in 2011-12 to Rs. 24,692 crore in 2018-19. It is mainly on account of massive public investment, which has tripled from Rs. 5988 crore (2012-13) to Rs. 18,677 crore (2019-20).
2. Implementation of road safety measures has ensured that the number of road accidents per lakh population is the lowest in Bihar (9.3) among all major Indian states during 2018.
3. Bihar was the sixth highest state in terms of building additional road length (1,30,799 km), during 2008-2017. The length of National Highways in Bihar has increased over the years and the expansion of road length was higher during 2013-17 compared earlier years. The State Government has spent a substantial amount on widening the SH network.
4. The public investments in rural roads by the State Government has increased by more than five times from Rs. 1874 crore in 2012-13 to Rs. 10,476 crore in 2019-20. The total paved road was only 35 percent in 2015, but it has increased to 75 percent in 2019. The length of the paved rural roads has increased to 92,204 km in 2019, from 48,794 km in 2015.
5. As most of the population resides in rural areas, the registration of two-wheelers is growing at a much faster rate in the state, compared to other vehicles. Apart from two-wheelers, the major growth drivers of registered vehicles in 2018-19 are — trucks (20.5 percent), cars (19.0 percent) and trailers (12.1 percent).

6. The number of new motor vehicles registered has increased annually by 17.7 percent during 2013-19. In 2018-19, a total of 11.89 lakh vehicles were registered, compared to only 5.53 lakh in 2013-14. The revenue through tax collection under the Motor Vehicles Act in the state has increased substantially from Rs. 835 crore in 2013-14 to Rs. 2067 crore in 2018-19, registering an annual growth of around 20 percent.
7. The expenditure on building construction has registered 34 percent annual growth during 2008-09 to 2018-19. The Public Sector Undertakings (PSUs) in road, bridge, transport and building construction sectors are managing their projects efficiently by completing them on time and making profit in the business.
8. The Railways is an affordable means of transportation for millions of passengers and also for bulk freight. Bihar was at the third position among major states of India in 2017 in terms of rail route per thousand sq.km. of area.
9. Air transport has registered a massive annual growth (35.6 percent) in the state, as the contribution of the sector in the GSDP increased from Rs. 31 crore in 2011-12 to Rs. 252 crore in 2018-19. As many as 40.61 lakh passengers availed air travel during 2018-19, compared to 31.11 lakh in 2017-18.
10. The telecom sector has registered tremendous growth and tele-density has been increasing rapidly over the years in both Bihar and other states. Presently, the rural tele-density in Bihar is 46 connections per 100 persons. The urban tele-density in Bihar is 149 connections per 100 persons.
11. A total of 9084 post offices were in Bihar as of March, 2018. Out of this, 8625 (94.9 percent) were in rural areas and 459 (5.1 percent) in urban areas. Many financial services are being provided through the vast postal network. There are 272 lakh account holders in Post Office Bank (POB) in Bihar, which constituted 7.3 percent of the all-India total. In terms of the total outstanding balance in the Post Office Bank, Bihar accounts for Rs. 92,810 crore, constituting 15.5 percent of the all-India total.

CHAPTER-VII : ENERGY SECTOR

1. There has been a significant increase in the projected peak demand for electricity in Bihar from 2650 MW in 2012-13 to 5300 MW in 2018-19, implying a growth of around 100 percent in six years. The peak demand met increased by 185 percent and reached 5139 MW during 2018-19, from 1802 MW in 2012-13.
2. The peak deficit in power was around 32 percent in 2012-13, which has substantially decreased to only 3 percent in 2018-19. The availability of power has increased from an

average of 6-8 hours to 20-22 hours in rural areas and from 10-12 hours to 22-24 hours in urban areas. The per capita consumption of the electricity in the state has risen from 145 kwh in 2012-13 to 311 kwh in 2018-19, implying a growth of 114 percent in six years.

3. The electricity connection has been provided to all willing households in the state. In the next phase, the connection is being provided to all agriculture pump sets, which are presently running on diesel. Providing electricity connection has been taken up in a mission mode in the state and the target for its completion is set for March 2020.
4. The expected power demand of Bihar by 2021-22 shall be of the order of 6900 MW, with an annual energy requirement of 39,841 MU. The power capacity availability in the state was 3889 MW in 2018, and increased to 4767 MW in 2019, implying a growth of 22.6 percent. In order to meet the increased demand for power, the State Government has already planned for additional capacity of 5335 MW from different sources in a phased manner by 2021-22. The total available capacity for Bihar by 2021-22 is expected to be 10,102 MW, of which 6421 MW (63.6 percent) will be conventional and the remaining 3681 MW (36.4 percent) non-conventional.
5. The total allocation of fund for BSPHCL and its subsidiary companies, Bihar Renewable Energy Development Agency (BREDA) and Bihar State Hydroelectric Power Corporation (BSHPC) was Rs. 3663.49 crore in 2015-16, and it has increased to Rs. 6185.63 crore in 2018-19.
6. The generation and purchase of power (net of central transmission loss) in Bihar increased from 21,677 MU in 2015-16 to 28,112 MU in 2018-19, implying a growth of around 30 percent in four years. With an increase in sales, the revenue collection has also increased. The cost coverage was around 80 percent in 2017-18 and it has increased to over 86 percent in 2018-19.
7. The total generation capacity of power as on March 2019 for the state was 4767 MW. Out of this, 82 percent is from coal-based thermal power, 11 percent from hydropower, and the balance 7 percent from renewable energy sources. In terms of ownership, the central sector has the largest share of 86 percent, followed by the private sector/IPPs (13 percent) and state sector (1 percent).
8. To prioritise the renewable energy sources, the State Government has created an institution called Bihar Renewable Energy Development Agency (BREDA), which is primarily engaged in the execution of various projects on solar pumps and solar installations. BREDA also carries out various energy efficiency schemes in Bihar.

CHAPTER-VIII : RURAL DEVELOPMENT

1. In recent years, JEEViKA has received recognition at both national and international forums for its excellent achievements. About 84,88,964 SHGs were formed by JEEViKA. Further, SHGs have been federated into 55,628 Village Organizations (VO) and 925 Cluster Level Federations (CLF). The project has been able to leverage bank credit worth Rs 8169 crore till 2018-19.
2. The State Government has launched a new scheme, 'Satat Jivikoparjan Yojana' (SJY), in August 2018. JEEViKA has been designated as the nodal agency for implementation of SJY, with a budgetary outlay of Rs 840 crore for three years. The objective of this scheme is to provide sustainable income-generating assets to extremely poor households, including those who were traditionally involved in production and sale of country liquor or toddy before the imposition of liquor prohibition in April 2016.
3. Till March, 2019, 2.2 lakh youth were trained and 2.5 lakh placed either by the Project Implementation Agency (PIA), or Rural Self-employment Training Institutes (RSETIs), or through job fairs organized by JEEViKA.
4. Under MNREGA, between 2017-18 and 2018-19, the number of job cards issued increased from 148 lakh to 155 lakh. The number of households receiving employment has increased by about 32 percent, from 22 lakh in 2017-18 to 29 lakhs in 2018-19. The number of person-days generated has increased three and a half times, from 352 lakh person-days in 2014-15 to 1234 lakh person-days in 2018-19.
5. In Bihar, PMAY-G is an important rural development scheme for housing, as a large share of the population is living in rural areas. The share of fund utilization under this scheme has increased from 38.2 percent in 2015-16 to 41.2 percent in 2017-18.
6. Under PDS, the total allotment of wheat and rice has increased from 4914.9 thousand tonnes in 2014-15 to 5220.2 thousand tonnes in 2018-19. The allotment of rice has increased by 183 thousand tonnes and allotment of wheat has increased by 122 thousand tonnes, between 2014-15 and 2018-19. It is worthwhile to note that the State Government has been fully utilising the allocation of food grains.
7. The total expenditure of the PRIs during 2018-19 was around Rs 780 crore, which is Rs 527 crore more as compared to 2014-15. At the GP level, there has been a reduction in expenditure in 2018-19, as compared to the previous year. At the PS level, a marginal increase in expenditure (Rs 1.10 crore) has been observed during the same period. In 2018-19, the expenditure was Rs. 27.70 crore at the PS level.

8. Under the Abhiyan Basera, a survey was conducted in 2014 to identify eligible beneficiaries of the scheme. It has identified 1,11,080 households belonging to different categories and, till 2017-18, 66,396 households were provided with required homestead land. This accounts for 59.7 percent of the targeted population. The coverage for different social groups are — Extremely Backward Castes (53.0 percent), Scheduled Caste (50.8 percent), Scheduled Tribe (55.5 percent) and Mahadalit (62.6 percent).

CHAPTER-IX : URBAN DEVELOPMENT

1. In Bihar, the rate of urbanization has been low compared to the all-India level. Within Bihar, the level of urbanization across the districts has been very skewed. At one extreme, the rate of urbanization was as high as 43.1 percent in Patna and, on another, it was only 3.5 percent in Banka.
2. To improve amenities at the urban centres, the State Government has introduced various schemes like 'Har Ghar Nal ka Jal', 'Ghar Tak Pakki Gali-Naliyaan' to name a few. By 2019-20, around 3,65,490 houses will be covered under the Pucca Naliyaan scheme, of which 3,57,217 have already been covered so far.
3. The budget allocation on urban development and housing has increased from Rs. 2079 crore in 2011-12 to Rs. 3151 crore in 2017-18, registering a growth of 52 percent. The actual expenditure on urban development and housing in the state has increased from Rs. 1395 crore in 2011-12 to Rs. 3227 crore in 2017-18, implying a growth of 131 percent.
4. The number of Self-Help Groups (SHGs) formed under NULM has increased from 2185 in 2017-18 to 5640 in 2018-19. The number of members in SHG under NULM also increased from 21,850 in 2017-18 to 56,402 in 2018-19. The number of SHGs which got Revolving Fund (RF) has shown an increase from 1260 in 2017-18 to 2622 in 2018-19.
5. Recently, Patna Metro Rail Project, with a total cost of Rs 13,366 crore, has been sanctioned. In this regard, the State Government has already constituted Patna Metro Rail Corporation Ltd. (PMRCL) to construct 31.39 kms of the metro to cover East-West and North-South corridors.

CHAPTER-X : BANKING AND ALLIED SECTORS

1. The banking infrastructure has increased in the semi-urban areas in Bihar at a higher pace than in the rural and urban areas in Bihar. The Scheduled Commercial Banks (SCB) have the largest presence in the state among all types of banking institutions. However, if one compares their presence in Bihar with other states in the country, it is found that the SCBs

have relatively less coverage, and their branches in Bihar are also comparatively understaffed.

2. With a share of 4.9 percent in 2019, Bihar is at the 10th position in terms of share of branches of the commercial banks. This share has remained almost the same during the years 2015 to 2019. If one compares this share with the population share of Bihar in the entire country (8.6 percent), it is observed that the bank branches in Bihar are serving a larger population than the national average.
3. Among the 221 new branches opened in the state during 2018-19, 42 percent were opened in semi-urban areas and 30 percent in rural areas. There is a significant decline in the number of bank branches being opened by the SCBs in the state in recent years. With the introduction of the Small Finance Banks and the Payment Banks in India as banking services providers, Bihar has seen their presence with 107 and 38 new branches, respectively. Within three years of their introduction, these banks have 234 branches in the state.
4. There is an increase of Rs. 36,148 crore in the deposits in SCBs in Bihar between 2017-18 and 2018-19. During the same period, credit provided by the SCBs expanded by Rs. 18,776 crore, an increase of 18.5 percent in the state. The share of Bihar in the total deposit and credit in India has remained at 2.8 percent and 1.2 percent respectively in 2018-19. Compared to its population share in the country, Bihar's share in both deposit and credit in the SCBs has remained much lower.
5. The CD ratio of the SCBs in Bihar during 2018-19 increased to 34.0 percent from 32.0 percent in 2017-18. However, it is still lower than the CD ratio of 121.8, 106.5 and 109.7 percent for Andhra Pradesh, Maharashtra and Tamil Nadu, respectively. Only Jharkhand and Himachal Pradesh are among the major states which have lower CD ratios than Bihar. The CD ratio at all-India level increased from 75.6 percent in 2017-18 to 78.2 percent in 2018-19.
6. There are 16 districts in Bihar that have CD ratio of the SCBs lower than 40 per cent (as on September 2019). Among the banks, the RRBs have the highest CD ratio and it has increased over the years, whereas the SBI and its associate banks have shown declining trends.
7. The overall achievement of the ACPs in the state has dropped to 84.3 percent in 2018-19 from 90.8 percent in 2017-18. The achievement of ACPs in non-priority sectors has remained higher compared to the priority sectors. It was 91.0 percent and 81.6 percent for the priority and non-priority sectors respectively in 2018-19. Both the sectors have seen a drop in achievements in the ACPs over the years. The drop was more in the priority sectors, where it decreased from 86.5 percent in 2017-18 to 81.6 percent in 2018-19.

8. The total credit flow to the Agriculture sector in the state under the ACP was Rs 41,798 crore in 2018-19, which is marginally lower than Rs. 42,161 crore in the previous year. The overall target under the ACP for the agriculture sector was Rs. 60,000 crore in 2018-19, which is higher than the target of Rs. 49,000 crore for 2017-18. However, the achievement percentage of the target set for the Agriculture sector dropped from 86.0 percent in 2017-18 to 70.7 percent in 2018-19. Among the banks, Commercial Banks were the worst performers in achieving the credit target for the agriculture sector in Bihar.
9. During 2018-19, 2.19 lakh KCCs were issued in the state by different financial institutions. Out of this, a majority of 1.55 lakh cards were issued by the commercial banks, followed by 62.3 thousand cards by the RRBs and 2.0 thousand cards by the CCBs. However, over the years, the achievement percentage in issuing 15.00 lakh cards per year until 2017-18 has steadily declined. The target for issuing the new KCC in the state was revised to 10.00 lakh cards for 2018-19, but only 21.9 percent of the target could be achieved in the year.
10. The NPA of all banks in Bihar as on March 2019 was 10.9 percent. Among the banks in Bihar, the NPA for the RRBs is the highest at 25.2 percent in March 2019; however, it has declined from 27.5 percent in March 2018. The NPA for the Cooperative Banks has also come down from 9.7 percent in March 2018 to 7.2 percent in March 2019. The NPA of the Commercial Banks, however, has increased to 9.1 percent in March, 2019 from 8.1 percent in the previous year.
11. The highest percentage of NPA was in the agriculture sector at 19.1 percent in March 2019, which is higher than 17.1 percent in March 2018. The NPA for the MSME sector declined from 13.9 percent on March 2018 to 12.8 on March 2019. The NPA in the non-priority sector has also come down from 2.1 percent in March, 2018 to 1.7 percent in March, 2019.
12. During 2018-19, loan amounting Rs. 7458.00 crore was sanctioned in Bihar under the PMMY scheme, which was more than the target amount of Rs. 4170.45 crore. The share of Kishore Loans was 47 percent, followed by Shishu and Tarun Loans with the shares of 30 and 23 percent, respectively. The achievement percentage for this scheme was 217.1 percent (Shishu), 208.3 percent (Kishore) and 118.6 percent (Tarun).

CHAPTER-XI : HUMAN DEVELOPMENT

1. Between 2011-12 and 2018-19, the level of Per Capita Development Expenditure (PCDE) in Bihar has grown at 14.2 percent, compared to the national average of 13.3 percent. The expenditure on education in the state increased at an annual rate of 13.8 percent, which is higher than that of the all-India average of 12.8 percent. The expenditure on health also registered an annual growth rate of 20.8 percent, and was higher than that of the all-India

average. In absolute terms, the expenditures on education in Bihar were — Rs. 10,214 crore in 2011-12 and Rs. 28,080 crore in 2018-19. Likewise, the expenditure on health also increased from Rs. 2125 crore in 2011-12 to Rs. 7318 crore in 2018-19.

2. The life expectancy at birth in Bihar in 2013-17 was 69.2 and 68.6 years for males and females, respectively. The increase in life expectancy has been 3.7 years for males and 2.4 years for females over 2006-10. The life expectancy in 2013-17 has increased by 2.1 years in the rural and 4.5 years in the urban areas, as compared to 2006-10. It should also be noted that, in these 7 years, the gap between India and Bihar in terms of life expectancy at birth, has come down from 0.3 year in 2006-10 to 0.1 year in 2013-17.
3. Between 2014-15 and 2018-19, the number of institutional deliveries increased from 14.94 lakh to 16.02 lakh, registering an annual growth rate of 7.2 percent. Under Mission Indradhanush, there was an increase of 41 percentage points in immunisation coverage, from 62 percent in 2015-16 to 103 percent in 2017-18 in Bihar.
4. Under National Rural Drinking Water Programme, there is a steady progress till 2015-16 when 26.7 thousand handpumps were installed; thereafter there is a decline in recent years. As regards the coverage of water quality problems, a remarkable achievement was made in 2018-19, when 20,290 wards were covered as per Mukhyamantri Peyjal Nishchay Yojana. A considerable achievement is recorded in the construction of Individual Household Latrine (IHHL). In 2018-19, out of the total 61.4 lakh IHHL constructed, 23.9 lakh (38.9 percent) latrines are for APL families and 37.5 lakh (61.1 percent) latrines are for BPL families.
5. There was an increase of 14.8 percentage points in the literacy rate of Bihar which has improved significantly from 47.0 percent in 2001 to 61.8 percent in 2011. It is worth noting that this decadal increase is not only the highest among all decadal growth rates in Bihar since 1961, it is also the highest among all states for the decade 2001-11.
6. The total enrolment in primary level was 160.08 lakhs in 2017-18, increasing from 154.51 lakhs in 2012-13. At the upper primary level, the total enrolment has increased from 60.36 lakh in 2012-13 to 75.76 lakh in 2017-18, implying an annual growth rate of 4.5 percent. At the primary level, the dropout rate recorded a decrease of 15.5 percentage points, between 2012-13 (31.7 percent) and 2017-18 (16.2 percent). At the upper primary level, the decline was of 6.9 percentage points.
7. With an estimated 11.8 million young population (aged between 18-23 years), Bihar needs to create adequate opportunities for higher education. Bihar has 879 colleges and 33 universities, of which 28 are traditional universities, four are private universities and one of

them is an open university. There are also 15 research institutes in the state. The state has 34 engineering colleges and 54 polytechnic institutes.

8. Under the Chief Minister Merit Scholarship Schemes, in 2019-20, an amount of Rs. 105.00 crore for SC students and Rs. 16.36 crore for ST students have been allotted for those passing matric examinations. For SC/ST students in higher secondary, the allotment was Rs. 63.40 crore. At present, 65 Residential Schools for Scheduled Castes and 20 for Scheduled Tribes are being run by the State Government.
9. Under Chief Minister Backward Classes Merit Scholarship Scheme, an amount of Rs. 55.94 crore has been given to the Department of Education for benefitting 55,942 students in 2018-19. There is a provision of Rs. 60.00 crore in 2019-20 for benefitting 60,000 students. Correspondingly, under Pre-Matric Scholarship Scheme, 1.25 crore students have been benefited with Rs. 1359.20 crore till date.
10. Under Mukhyamantri Alpsankhayak Kalyan Chhatrawas Anudan Yojana, students residing in minority hostels are given a grant of Rs. 1000 per month to promote higher education among the minority. In 2018-19, there was a provision of Rs. 1.00 crore, out of which Rs. 81.86 lakh was distributed among 8186 students.

CHAPTER-XII : CHILD DEVELOPMENT

1. In India, 39 percent of the population belongs to the age group of 0-18 years, as per Census 2011; whereas, in Bihar, 48 percent of the population is in that age group. Bihar accounts for 11 percent of India's total child population. The total child population of the state adds upto 4.98 crore, of which females account for 47.4 percent (2.36 crore) and males for 52.6 percent (2.62 crore).
2. The Census 2011 data reveals that the child sex ratio was higher than the overall sex ratio in Bihar. The child sex ratio was 935 females per 1000 males, 923 in 0-14 years age-group, and 897 in the age group of 0-18 years. The child sex ratios among the Scheduled Castes (962) and Scheduled Tribes (969) are better than the state average of 935.
3. The practice of Child Budgeting started in Bihar in 2013-14, presenting the details of all schemes related to child welfare. Between 2013-14 and 2018-19, the expenditure on Child development grew at an annual rate of 23.3 percent. In the same period, the per capita expenditure increased from Rs. 1225 in 2013-14 to Rs. 3727 in 2018-19. The share of expenditure on child development in the total state budget lies around 12 percent, with some year-to-year variation.

4. The Integrated Child Development Scheme is primarily a service-based programme, and its staffing pattern is extremely vital for its achievement. In all, 1.07 lakh Anganwadi Centres have been established to cater to 19.1 million children (0-6 years) and 60.3 lakh pregnant and lactating women. Compared to 2013-14, there has been an increase in the number of Anganwadi Workers and Anganwadi Helpers in 2018-19.
5. The percentage of elementary schools with drinking water facility has increased from 93.0 percent in 2011-12 to 99.0 percent in 2016-17. In 2011-12, the percentage of schools with boy's toilets was 70.3 percent, which increased to 97.8 percent in 2016-17. Similarly, the number of schools having toilet facility for girls had increased from 52.2 percent in 2011-12 to 94.0 percent in 2016-17.
6. As per 2011 census, the literacy rate in Bihar stood at 61.8 percent. However, female literacy rate has been much lower at 51.5 percent compared to the male literacy rate (71.2 percent) in Bihar. The decrease in the number of total out-of-school children from 2.17 lakh in 2016-17 to 1.44 lakh in 2018-19 is the result of the focused approach of the State Government. Out of these, 29.4 percent were SC, 13.8 percent were minority and only 3.0 percent were ST.
7. There are 33 Child Homes functioning in different districts of the state to support and rehabilitate destitute, abandoned and orphaned children. Out of these 33 homes, 22 are meant for boys and 11 for girls. Till date, a total of 6540 children have been provided with residential facilities in different Child Homes.

CHAPTER-XIII : ENVIRONMENT AND CLIMATE CHANGE

1. During 2018-19, Bihar recorded an annual rainfall of 780 mms. Kishanganj received the highest annual rainfall of 1522 mms., while the lowest rainfall was observed in the district of Jehanabad (403 mms.).
2. The annual groundwater extraction in Bihar has been estimated to be around 29 bcm, while the total annual groundwater recharge is about 31.4 bcm in 2017-18. Bihar's rate of groundwater extraction stands at 45.8 percent, which is lesser than the all-India average of 63.3 percent.
3. Bihar has about 285 wetlands, with a total area of 3992 hectares, accounting for nearly 0.6 percent of the total recorded forest area of the state in 2019.

4. The total forest and tree cover together in Bihar constituted about 9309 sq. kms. in 2019, which is about 9.9 percent of the total geographical area of the state. The Bihar State Agroforestry Policy, 2018 seeks to protect and stabilize ecosystems, promote resilient cropping systems, and enhance employment of rural households through expansion of agroforestry.
5. There is a steady increase in the revenue of the Department of Environment, Forest and Climate Change from Rs. 16.10 crore in 2014-15 to Rs. 24.13 crore in 2018-19, registering a compound annual growth rate of 11.0 percent.
6. Jal-Jeevan-Hariyali is a flagship programme of the State Government which is intended to tackle issues relating to climate change and environmental degradation. The total expenditure for the execution of various schemes under Jal-Jeevan Hariyali Campaign is estimated to be Rs 24,524 crore during 2019-20 to 2021-22. The expenditures for 2019-20, 2020-21 and 2021-22 are estimated to be Rs 5870 crore, Rs 9874 crore, Rs 8780 crore, respectively. Under the administrative head of Jal-Jeevan Hariyali Campaign, the estimated expenditures are — Rs. 6.19 crore in 2019-20, Rs. 8.42 crore in 2020-21 and Rs. 8.78 crore in 2021-22.
7. The burning of crop stubble in agricultural fields in Bihar is of concern. The State Government has announced that the farmers who are found to be burning crop residue would be deprived of financial assistance for a period of three years.
8. As per the estimates of the Bihar State Pollution Control Board (BSPCB), there has been a declining trend in the noise pollution levels in Patna during 2016-18. The State Government is conducting awareness drive against honking to reduce noise pollution in the city.
9. The Valmiki Tiger Reserve is located in an area of 893.73 sq. kms. in the district of West Champaran, housing the *Panthera Tigris*. As per the estimates of the National Tiger Conservation Authority, the tiger population in Bihar increased from 8 in 2010 to 31 in 2018. The Vikramshila Gangeya Dolphin Sanctuary, situated in Bhagalpur, provides habitat for the Gangetic Dolphin (*Platanista Gangetica*), freshwater fishes and turtles.
10. Excessive rainfall in the kharif season in 2019-20 and overflowing rivers have resulted in substantial crop damage. As per the estimates of the Department of Agriculture, more than 5 lakh hectares could not be sown in the state.

CHAPTER-XIV : E-GOVERNANCE

1. Bihar has received as many as eight prestigious awards in the field of e-governance. The objective of e-governance is to make all government services accessible to the common man in their locality, through common service delivery outlets. It also ensures efficiency, transparency, and reliability of such services at affordable costs to realise the basic needs of the common man.
2. E-governance comprises the use of Information and Communication Technology (ICT) for wider participation of citizens in public affairs. The ICT infrastructure in the state has been strengthened through implementation of BSWAN, SecLAN, State Data Centre, Common Service Centres, Wi-Fi Projects, Aadhar, Bharat Net, etc. and expansion of IT Institutions.
3. An IT city in Rajgir (Nalanda), one IT tower and one IT park in Patna, Software Technology Park of India (STPI) in Darbhanga, Bhagalpur and Patna, Centre of National Institute of Electronic and Information Technology (NIELIT) in Bihta, Buxar and Muzaffarpur and Incubation Centre at IIT, Patna (Bihta) for Medical Electronics have either been completed or are in progress.
4. Law and Governance is a very complex issue and ICT plays an important role in Bihar through implementation of CCTN, Cyber Security, e-prison, CCTV and VC, Bihar Police Help Line, e-court, Child Labour Tracking System, e-Municipality Bihar, e-Office etc. to enforce law and order and speed up peaceful environment in the state.
5. Public Finance Management includes the cycle of budget formulation, budget execution, accounting, reporting, external scrutiny and audit; therefore, the State Government has implemented CFMS in 2019. CFMS has been rolled out by connecting all departments, treasuries, DDOs, Reserve Bank of India and other government offices to provide real-time information regarding receipts, expenditures, debt and investments, and ways and means advances to facilitate office-wise and agency-specific policy decisions.
6. Nearly all the departments of the State Government have been running e-Governance programmes in the state. For example, *e-Labharthi* provides several e-services like social security pension, disability allowance, payments for dress and reading materials, and scholarship amount, etc. These services are provided by various departments like Education, Social Welfare, SC / ST Welfare, Backward and Most Backward Castes Welfare, Minority Welfare etc. In addition to service delivery programmes, several right-based powers have been provided to the citizens through e-service in order to empower them with their legal rights.

7. For smooth and leakage-proof management of food supply chain, an IT module has been developed to track doorstep delivery through GPS and SMS alert. There is also an IT module for grievance redressal of beneficiaries by the Project Management Unit.
 8. All procurement activities for paddy are being undertaken online through a procurement software and payment is being released within 48 hours through RTGS/ NEFT to registered farmers.
 9. E-governance plays a crucial role in providing disaster-related services, both before and in response to the disasters. Disaster awareness is being ensured through the alerts sent to the citizens to prepare themselves for the disaster through WRD Scheme Implementation. The State Government is also using ICT for Monitoring System, Flood Forecast Model, River Behavioural Analysis Model, Embankment Asset Management System, Real-Time Data Acquisition System, Mathematical Modelling Centre, Distribution of Gratuitous Relief (GR) and Tatkal Sahayata, etc.
 10. The State Government has implemented many e-governance programmes to provide transparent bidding and public procurement, and monitoring and evaluation of physical infrastructure projects. E-governance in Bihar also includes digitisation and updation of land records, skill development and employment promotion, support to enhance productivity, etc. The State Government is also concerned about the climate change and environment, and many IT-enabled programmes related to Forest Management Information System have been initiated.
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CHAPTER - I

BIHAR ECONOMY : AN OVERVIEW

We will be remembered only if we give to our younger generation a prosperous and safe India, resulting out of economic prosperity coupled with civilizational heritage.

— A.P.J. Abdul Kalam

Abstract

Over the last decade, there was a steady growth process in Bihar, spanning both economic and social sectors. Thanks to the strategies of the State Government, this growth was not only robust but inclusive as well, benefitting particularly the poor households. The Bihar economy has registered higher growth than the overall growth of the Indian economy in the last three years and the real Gross State Domestic Product (GSDP) of Bihar increased by 10.5 percent in 2018-19. The growth is primarily led by the tertiary sector, with a growth rate of 13.3 percent. The varying growth rates of different sectors has also resulted in structural changes in the economy— the share of the primary sector in GSDP has decreased and the share of tertiary has increased. Finally, in the recent years, the overall inflation rate and rural inflation rate have been much lower in Bihar than the national inflation rates. This growth performance of the Bihar economy was possible because of high development expenditure by the State Government in the recent past.

Bihar has consistently experienced socio-economic development over the last decade, despite limited availability of financial resources. The emphasis of the policy in state has been on making the benefits of the government programmes reach everyone in the society. This is evident from the achievements of the state in various sectors, both economic and social. The development achieved so far is a result of multiple policy initiatives of the State Government, including increased level of development expenditure.

To supplement the growth process, the State Government is working on the ‘Seven Resolves’ (Saat Nishchay) which includes — welfare of youth, women employment, supply of electricity to all households, clean drinking water, road connectivity, toilet facility, and provision of

higher technical education. In addition to the efforts to achieve higher economic growth, the State Government has also focused on addressing challenges to the environment through its ambitious programme 'Jal Jeevan Hariyali Abhiyan', started in 2019-20. This programme is an initiative of the State Government that brings focus of the policy making to the issues consistent with sustainable development. An amount of Rs. 24,524 crore is budgeted to be spent on this scheme in Bihar over the next three years starting from the current fiscal.

The growth in real Gross State Domestic Product (GSDP) of Bihar was 10.5 percent in 2018-19, which is higher than the growth rate for the Indian economy. The state has managed its finances prudently and has adhered to the resolutions of the Bihar Fiscal Responsibility and Budget Management (FRBM) Act, 2006. Despite the limitations in improving revenue generation from own sources, the state could generate substantial revenue surplus during the last decade which provided some useful fiscal space for public investment. A discussion on the status of the various sectors of Bihar economy, along with the major policy initiative and their impact has been covered in the different chapters of the present Economic Survey. The current chapter presents an overall review of the economy.

1.1 Socio-Economic Profile of the State

Bihar is a densely populated state, where 1106 persons lived per sq. km. in 2011, which was nearly three times the average population density of the country (382 persons per sq. km.). The population density is expected to increase further in the coming years. In 2011, Bihar had a population of 104.1 million, whereas the population of the country was 1210.6 million. The demographic profile of the State using census data for the years 2001 and 2011, along with the number of the administrative units, is presented in Table 1.1. Between these two censuses, the sex ratio at birth and the child sex ratio had declined in both Bihar and India. Most of the population of the state lives in rural areas with the urbanization ratio at only 11.3 percent in 2011. However, with the consistent socio-economic development of the state, these ratios are expected to improve for Bihar in the next census.

Table 1.1 : Demographic Profile and Administrative Structure of Bihar and India (2001 and 2011)

		Population (million)			Sex Ratio	Sex ratio at birth 2013-15	Sex ratio at birth 2014-16	Child Sex Ratio
		Total	Rural	Urban	(females per '000 males)			
Bihar	2001	82.9	74.3	8.7	919	916	908	942
	2011	104.1	92.3	11.8	918			935
India	2001	1028.7	742.5	286.1	933	900	898	927
	2011	1210.6	833.7	377.1	943			919
		Density (persons per sq. km.)	Urbanization (%)	Decadal Growth (%)	Administrative Structure			
					No. of Districts	No. of CD blocks	No. of Towns (statutory/census)	No. of Villages
Bihar	2001	880	10.5	28.6	37	533	130	45098
	2011	1106	11.3	25.1	38	534	199	39073
India	2001	325	27.8	21.5	593	5463	5161	638596
	2011	382	31.2	17.6	640	5924	7935	597369

Sources : Census 2001 and 2011

The poverty ratios using the Tendulkar Committee methodology, for Bihar was 34.1 percent for rural and 31.2 percent for urban areas in 2011-12. The overall poverty ratio was 33.7 percent (Table 1.2). These poverty ratios are much higher than at the all-India level. The pace of poverty reduction, as measured by the difference between the poverty ratios in 2004-05 and 2011-12, was higher in Bihar than at the all-India level. Further, it is also observed that the reduction in the poverty ratio in rural areas of Bihar (21.6 percentage points) was higher than that in the urban areas (12.5 percentage points). The difference between Bihar and all-India average for the poverty ratio is more for urban areas (17.5 percentage points) compared to the rural areas (8.4 percentage points).

Table 1.2 : Poverty Ratio of Bihar and India (1993-94, 1999-00, 2004-05 and 2011-12)

Area		1993-94	1999-00	2004-05	2011-12	Reduction in Poverty ratio between 2004-05 and 2011-12
Bihar	Rural	58.2	44.3	55.7	34.1	21.6
	Urban	34.5	32.9	43.7	31.2	12.5
	Combined	55.0	42.6	54.4	33.7	20.7
India	Rural	37.3	27.1	41.8	25.7	16.1
	Urban	32.1	23.6	25.7	13.7	12.0
	Combined	36.0	26.1	37.2	21.9	15.3
Monthly Per Capita Expenditure (Rs.)						
Bihar	Rural	—	—	433	778	—
	Urban	—	—	526	923	—
India	Rural	—	—	447	816	—
	Urban	—	—	579	1000	—

Source : Planning Commission, Government of India

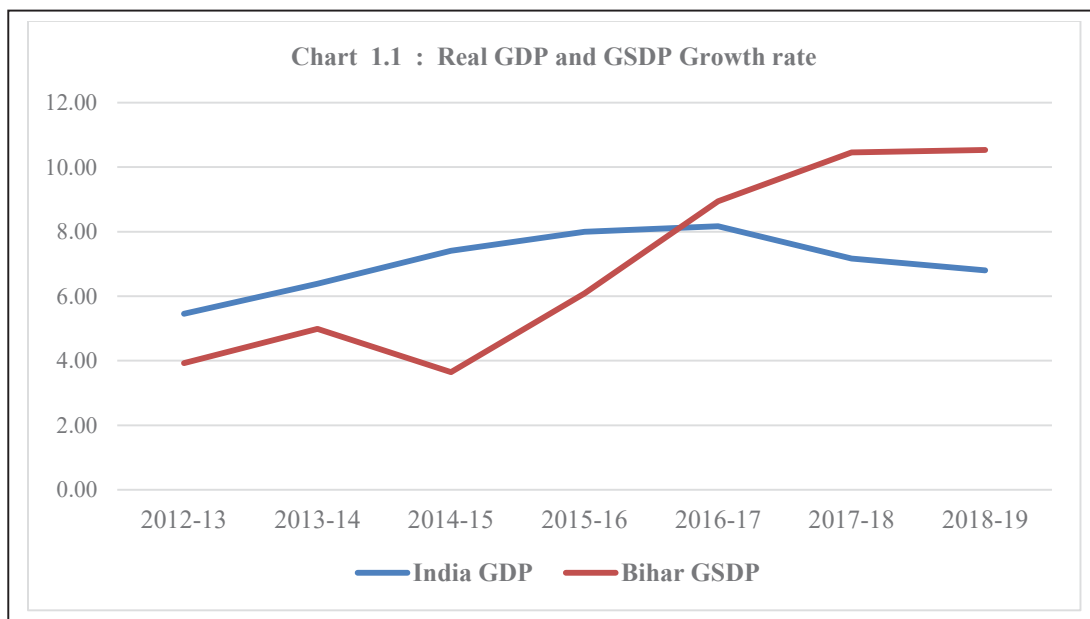
1.2 Growth of Bihar Economy

Bihar economy has grown at a higher rate than the growth registered by the country in last three years (Chart 1.1). The real GDP growth estimated for the Indian economy has come down in last two years, whereas Bihar has registered double-digit growth during the same period. The sectoral growth in Bihar and Indian economy for the period 2012-13 to 2018-19 is compared in the Table 1.3. The higher growth rate achieved by the Bihar economy compared to the Indian economy during 2017-18 and 2018-19 has largely been due to relatively higher growth in the tertiary sector in the state; the two other sectors have grown at a relatively lower rate.

Table 1.3 : Sectoral Growth rate of GDP/GSDP in India and Bihar at Constant Price 2011-12 (2012-13 to 2018-19)

Year	Primary		Secondary		Tertiary	
	India	Bihar	India	Bihar	India	Bihar
2012-13	1.4	9.6	3.6	-13.2	8.3	7.4
2013-14	4.8	-10.8	4.2	27.8	7.7	3.8
2014-15	1.2	-1.6	6.7	11.9	9.8	2.5
2015-16	2.1	4.3	9.5	0.1	9.4	9.1
2016-17	6.8	10.0	7.5	14.3	8.4	7.0
2017-18	5.0	6.4	6.0	4.7	8.1	13.1
2018-19	2.7	0.6	7.5	6.3	7.5	13.3

Source : Central Statistical Organisation, Government of India



Various figures related to the macroeconomic indicators for Bihar is presented in Appendix at the end of this chapter. As per the quick estimates available from the Central Statistical Organisation (CSO), Government of India, the GSDP of Bihar at current prices was Rs 5,57,490 crore in 2018-19. At constant (2011-12) prices, the GSDP figure for the state was Rs 3,94,350 crore in 2018-19. The NSDP for the state in 2018-19 was Rs 5,13,881 crore (current prices) and Rs 3,59,030 crore (constant prices). The resulting Per Capita GSDP of Bihar in 2018-19 was Rs 47,541 (current prices) and Rs. 33,629 (constant prices). Table A 1.2 (Statistical Appendix) presents the time series data on GSDP and NSDP for the period 2004-05 to 2014-15, with base year 2004-05. Further, Tables A 1.2 - A1.5 present the sector-wise breakdown of GSDP and NSDP for the years 2011-12 to 2018-19, both at current and constant (2011-12) prices.

Per capita NSDP

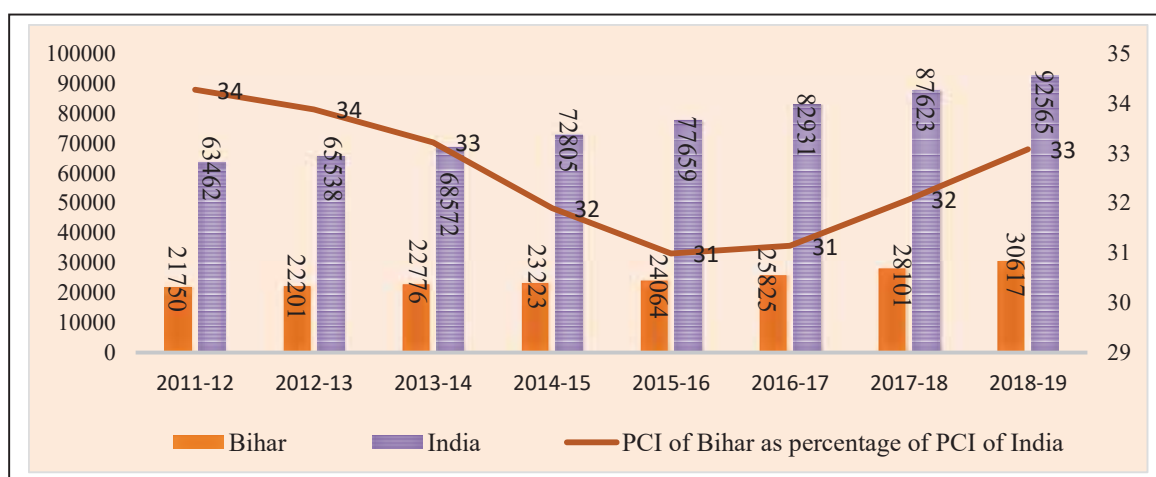
Per capita NSDP at constant prices is reported for different States in Table 1.4. The per capita income for Bihar has increased from Rs. 21,750 in 2011-12 to Rs 30,617 in 2018-19. However, Bihar has the lowest per capita income among the states in India and it was at only 33.1 percent of the national average (Rs. 92,565) in 2018-19. Thus, the state needs extra push to increase its economic activity so that it converges towards the national average of per capita income. The pattern of per capita NSDP for the state and the country is shown in Chart 1.2.

Table 1.4 : Per Capita Net State Domestic Product (NSDP) at (2011-12) Prices of Major Indian States (2011-12 to 2018-19)

State	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Andhra Pradesh	69000	68865	72254	79174	88609	97086	106864	117261
Bihar	21750	22201	22776	23223	24064	25825	28101	30617
Chhattisgarh	55177	56777	61409	61122	61504	65948	68543	71429
Gujarat	87481	96683	102589	111370	120683	131281	144090	NA
Haryana	106085	111780	119791	125032	137748	148193	157649	168209
Jharkhand	41254	44176	43779	48781	44524	48826	54246	57157
Karnataka	90269	94382	101864	105703	116819	131260	142943	154809
Kerala	97912	103551	107846	112444	120387	129256	136364	NA
Madhya Pradesh	38551	41287	42778	44336	47763	53253	55677	58706
Maharashtra	99564	103904	109399	114746	122422	132899	141152	NA
Odisha	48370	50714	54109	54210	57592	66240	69864	74927
Punjab	85577	88915	93238	95807	100141	105848	110834	116222
Rajasthan	57192	58441	61053	64496	68565	71076	74453	78785
Tamil Nadu	92984	96890	101559	106189	114581	121378	129328	138805
Uttar Pradesh	32002	32908	34044	34583	36923	38965	41082	43102
West Bengal	51543	53157	53811	54520	57255	60618	65497	73202
India	63462	65538	68572	72805	77659	82931	87623	92565
PCI of Bihar as percentage of PCI of India	34.3	33.9	33.2	31.9	31.0	31.1	32.1	33.1

Source : Central Statistical Organisation, Government of India

Chart 1.2 : Per Capita Net State Domestic Product (NSDP) at (2011-12) Prices



Sectoral Growth Rate

The sectoral growth rate of the Bihar economy for the years 2017-18 (provisional estimates) and 2018-19 (quick estimates) along with year 2016-17 is presented in Table 1.5. The overall growth rate for the GSDP in Bihar was estimated to be in double digit during last two years. The rapid

Table 1.5 : Sectoral Growth Rate of GSDP (2016-17 to 2018-19)

Sl. No.	Sector	2016-17		2017-18 (P)		2018-19 (Q)	
		Current Prices	Constant Prices	Current Prices	Constant Prices	Current Prices	Constant Prices
1	Agriculture, forestry and fishing	16.9	11.0	12.7	6.7	6.5	0.6
1.1	Crops	17.9	11.9	8.7	4.9	4.0	-3.9
1.2	Livestock	14.0	7.8	20.6	9.9	12.4	8.4
1.3	Forestry and logging	32.8	27.1	6.8	2.5	7.3	4.9
1.4	Fishing and aquaculture	5.8	0.5	23.0	15.5	3.1	2.4
2	Mining and quarrying	-6.2	-24.6	2.8	-12.0	14.2	2.7
	Primary	16.2	10.0	12.5	6.4	6.7	0.6
3	Manufacturing	25.4	25.6	5.8	1.3	5.1	3.0
4	EGWUS*	-5.6	8.3	-1.6	12.0	5.2	5.3
5	Construction	8.5	6.0	13.3	7.0	14.6	9.4
	Secondary	14.2	14.3	9.0	4.7	9.9	6.3
6	Trade, repair, hotels and restaurants	13.8	10.1	14.2	10.7	22.5	17.0
6.1	Trade & repair services	14.0	10.3	14.4	10.9	23.1	17.6
6.2	Hotels & restaurants	9.4	5.8	11.4	8.1	12.0	5.8
7	TSC&S*	7.5	3.2	8.2	7.5	14.0	8.8
7.1	Railways	3.0	-13.3	1.1	20.1	1.8	2.1
7.2	Road transport	14.7	11.6	16.1	12.7	20.4	14.0
7.3	Water transport	60.8	56.5	-5.1	-7.9	-1.8	-5.4
7.4	Air transport	21.4	18.2	28.2	24.4	44.0	36.0
7.5	Services incidental to transport	17.8	14.6	14.5	11.0	12.7	6.8
7.6	Storage	6.9	4.2	17.4	13.8	8.6	3.8
7.7	Communication & services related to broadcasting	-3.1	-4.3	-4.3	-7.0	5.6	1.2
8	Financial services	1.7	2.0	22.5	13.8	22.5	13.8
9	REID&PS*	5.2	3.6	7.2	5.1	6.9	4.9
10	Public administration	10.4	7.3	34.9	33.5	11.1	8.2
11	Other services	15.1	10.7	24.8	20.3	23.3	20.0
	Tertiary	10.5	7.0	16.5	13.1	18.0	13.3
12	Total GSVA at basic prices	12.5	9.1	14.2	9.9	13.9	9.2
13	Gross State Domestic Product	13.6	8.9	14.8	10.5	15.0	10.5

Note : EGWUS = Electricity, gas, water supply & other utility services
TSC&S = Transport, storage, communication & services related to broadcasting
REID&PS = Real estate, ownership of dwelling & professional services
Source : Directorate of Economic and Statistics, GoB

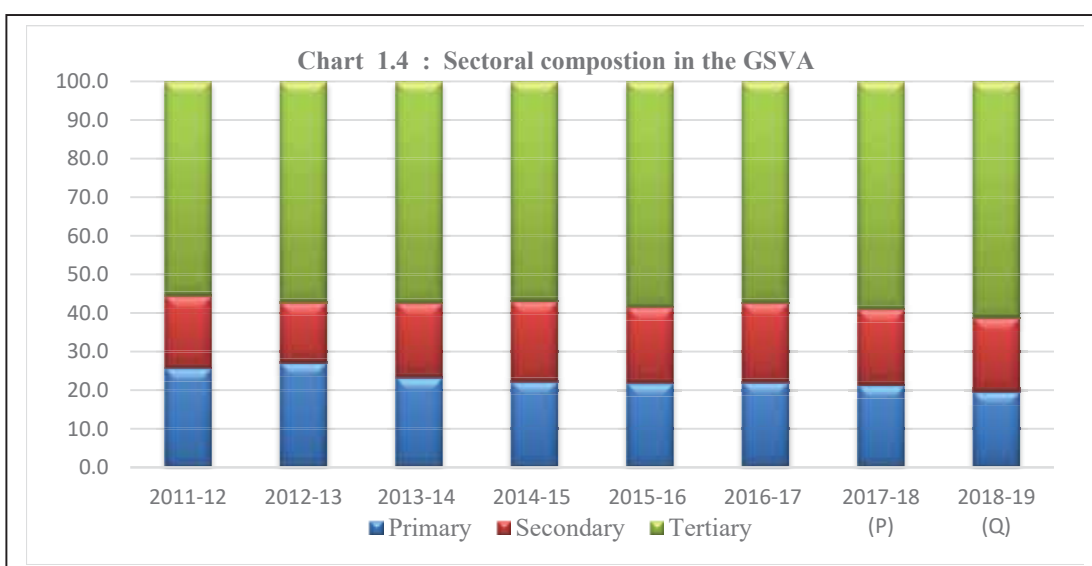
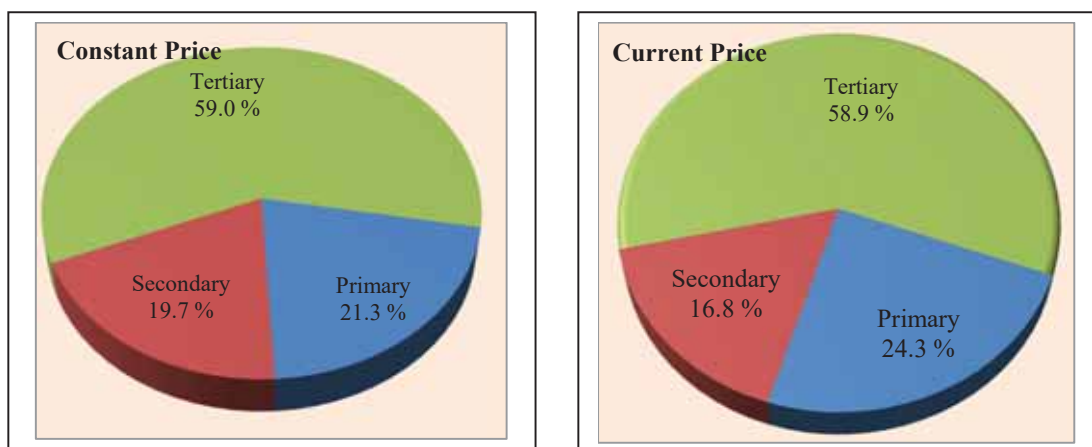
growth registered in the state was mainly on account of the growth in the tertiary sector of the economy, which grew at 13.10 and 13.30 percent in 2017-18 and 2018-19 respectively. Among the sub-sectors, air transport is seen to have grown at a rate of 36 percent in 2018-19. The secondary sector had modest growth rates of 4.73 and 6.29 percent in those two years. It was the growth in the primary sector which lost its momentum in 2018-19 and the growth rate came down to 0.63 percent. Within the primary sector, agriculture and allied activities is the major part, and a major proportion of the state's population is dependent on agriculture and allied activities. The estimated growth in the agriculture came down to -3.87 percent in 2018-19 from 4.88 percent in 2017-18. In the secondary sector, manufacturing grew at 3.02 percent and construction at 9.44 percent in 2018-19. It can be concluded that the Bihar economy has grown on account of the growth in the tertiary sector. The untapped potential for growth in the primary sector will help the state achieve a higher growth rate in the coming years.

Following sectors have registered a double-digit growth and has contributed towards growth of the overall economy of Bihar during 2018-19 at constant prices : Air transport (36.0 percent), Other Services (20.0 percent), Trade, Trade & repair services (17.6 percent), Road transport (14.0 percent) and Financial Services (13.8 percent).

1.3 Structural Composition of the Bihar Economy

The sectoral contribution of the three broad sectors (Primary, Secondary and Tertiary) in the Bihar economy for 2017-18 is reported in Chart 1.3. The share of Primary, Secondary and Tertiary sector in the GSVA was 21.3 percent, 19.7 percent and 59.0 percent, respectively. The sectoral composition of the Bihar Economy has changed during 2011-12 to 2018-19. This is mainly due to shift in the sectoral share from Primary to the Tertiary sector, while the share of Secondary sector has remained almost unchanged (Chart 1.4). The share of Primary sector has come down from 25.8 percent to 19.7 percent during 2011-12 to 2018-19, whereas the share of Tertiary sector has increased from 55.5 percent to 61.2 percent during the same period. The share of Secondary sector was 18.8 percent in 2011-12 and marginally higher at 19.1 percent in 2018-19.

Chart 1.3 : Sectoral Distribution of GSVA 2017-18 at Basic Prices, in percent



The sectoral composition of the Bihar economy for the years 2012-13 to 2018-19, taking into account all the sub-sectors, is reported in the Table 1.6. The Crops and Livestock are the major part of the Primary sector in the state. The share of Livestock in the GSVA has remained almost unchanged at 5.6 percent, whereas the share for Crops has declined from 18.9 percent to 10.6 percent. This has led to the decline in the overall share of the Primary sector, from 27.1 percent to 19.7 percent. Within the Secondary sector, Construction and Manufacturing are major contributor to the GSVA and their shares were 9.5 percent and 8.2 percent respectively in 2018-19 and these shares have remained almost unchanged in last five years. The contribution of the Secondary sector has remained between 19 and 20 percent during 2013-14 to 2018-19. In the Tertiary sector, major contributors in 2018-19 were — Trade & Repair services (18.2 percent), Real estate, Ownership of dwelling and Professional Services (9.1 percent), Road Transport (5.4 percent), and Financial Services (4.3 percent). The share of all these components in the GSVA of Bihar (except Real estate, Ownership of dwelling and Professional Services) has increased during 2012-13 to 2018-19.

Table 1.6 : Sectoral Composition of GSVA at Constant (2011-12) Prices (2012-13 to 2018-19)

Sl. No.	Sector	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 (P)	2018-19 (Q)
1.	Agriculture, forestry and fishing	27.0	22.8	22.0	21.2	21.6	21.0	19.3
1.1	Crops	18.9	14.2	13.1	12.3	12.7	12.1	10.6
1.2	Livestock	5.0	5.4	5.7	5.7	5.6	5.6	5.6
1.3	Forestry and logging	1.7	1.7	1.6	1.5	1.8	1.7	1.6
1.4	Fishing and aquaculture	1.5	1.6	1.7	1.7	1.5	1.6	1.5
2.	Mining and quarrying	0.1	0.5	0.2	0.6	0.4	0.3	0.3
	Primary	27.1	23.4	22.2	21.9	22.0	21.3	19.7
3.	Manufacturing	3.9	7.2	9.6	8.2	9.4	8.7	8.2
4.	EGWUS*	1.6	1.6	1.6	1.5	1.5	1.5	1.5
5.	Construction	10.2	10.5	9.7	10.0	9.7	9.5	9.5
	Secondary	15.6	19.3	20.9	19.7	20.6	19.7	19.1
6.	Trade, repair, hotels and restaurants	18.6	17.5	15.8	17.6	17.8	17.9	19.2
6.1	Trade & repair services	17.5	16.4	14.8	16.6	16.8	16.9	18.2
6.2	Hotels & restaurants	1.1	1.1	1.0	1.0	1.0	1.0	0.9
7.	TSC&S*	8.1	9.0	9.7	10.3	9.7	9.5	9.5
7.1	Railways	1.3	1.5	1.5	1.4	1.1	1.2	1.2
7.2	Road transport	4.0	4.4	4.7	4.9	5.0	5.1	5.4
7.3	Water transport	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.4	Air transport	0.0	0.0	0.0	0.0	0.0	0.1	0.1
7.5	Services incidental to transport	0.4	0.5	0.5	0.5	0.6	0.6	0.5
7.6	Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.7	C&SRB*	2.3	2.6	2.9	3.4	3.0	2.5	2.3
8.	Financial services	3.8	3.9	4.3	4.3	4.0	4.2	4.3
9.	REID&PS*	11.4	11.4	11.4	10.5	10.0	9.5	9.1
10.	Public administration	5.3	4.9	4.9	4.6	4.5	5.5	5.4
11.	Other services	10.1	10.5	10.8	11.2	11.3	12.4	13.6
	Tertiary	57.2	57.3	56.9	58.5	57.3	59.0	61.2
12.	Total GSVA at basic prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note : EGWUS = Electricity, gas, water supply & other utility services
TSC&S = Transport, storage, communication & services related to broadcasting
REID&PS = Real estate, ownership of dwelling & professional services

Source : Directorate of Economics and Statistics, GoB

1.4 District-wise Disparity

There exists considerable disparity across the districts in Bihar in terms of socio-economic development, as evident from various indicators. The detailed discussions on various parameters are covered in other chapters of the Economic Survey. The latest figures available for the district-wise Per Capita Income for Bihar are for 2011-12 only and are reported in Table A 1.6 (Statistical Appendix) As per these estimates, three most prosperous districts in Bihar were — Patna, Munger and Begusarai, and the three most economically disadvantaged districts were — Madhepura, Supaul and Sheohar.

In the absence of the latest district-wise figures for per capita income ‘consumption of Petroleum Products’ per 1000 persons (Petrol, Diesel and LPG) in different districts can give some idea about the level of economic activity taking place at the district level. The district-wise consumption of the petroleum products per 1000 person for 2018-19, along with the average consumption during 2014-15 to 2018-19 are shown in Table A 1.7 (Statistical Appendix). In addition, the table also presents the share of each district in the total consumption in Bihar for the three petroleum products — Petrol, Diesel and LPG. The average per capita consumption of these petroleum products can be used to judge the level of economic activity at the district level and, hence, the district-wise disparity. The relatively prosperous and backward districts on the basis of per 1000 person consumption of petroleum products are listed in the Table 1.7. The three most prosperous districts on the basis of per thousand person Petrol consumption are — Patna, Muzaffarpur, and Gopalganj, whereas the three most disadvantaged districts are — Sheohar, Lakhisarai and Banka.

Table 1.7 : Relatively Prosperous and Backward Districts of Bihar

Criteria	Districts	
	Top 3	Bottom 3
Petrol	Patna, Muzaffarpur, Gopalganj	Sheohar, Lakhisarai, Banka
Diesel	Patna, Begusarai, Muzaffarpur	Sheohar, Madhubani, Banka
LPG	Patna, Munger, Muzaffarpur	Kishanganj, Araria, Banka
Small Savings	Patna, Saran, Buxar	Araria, Kishanganj, Khagaria

Source : Finance Department, Bihar and Indian Oil Corporation

Apart from the consumption of petroleum products, one can also obtain an idea about the district-wise disparity in economic status from the data on Small Savings in post offices. The

data on this indicator for all the districts is presented in Table A 1.8 (Statistical Appendix). From the data, it emerges that three most prosperous districts in terms of Per Capita small savings are — Patna, Saran and Buxar. At the other end, the most disadvantaged districts are — Araria, Kishanganj and Khagaria. Taking into account both the indicators of district-wise disparity, it is observed that Patna and Muzaffarpur are the two most prosperous districts in Bihar. Similarly, the two most economically disadvantaged districts in Bihar are — Sheohar and Banka.

1.5 Consumer Price Index

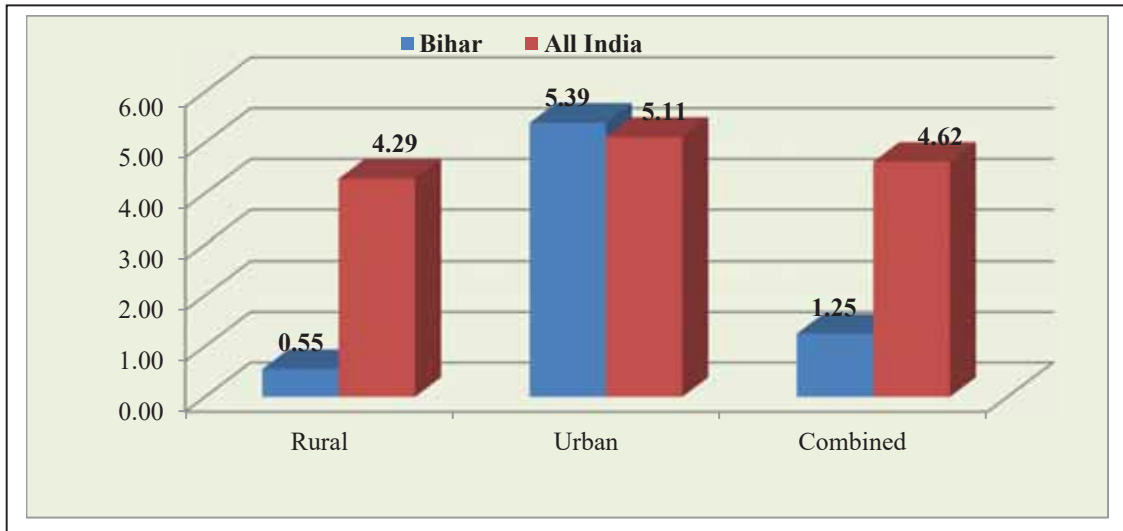
Recently, the Central Statistical Organisation has introduced a new series of price index, with 2011-12 as the base year. This series covers both Wholesale Price Index (WPI) and Consumer Price Index (CPI). The WPI is available only for India as a whole; but fortunately, CPI is available for all the states, along with the national average. Further, CPI is also estimated separately for the rural and urban areas. Table 1.8 presents the CPI for all the major states of

Table 1.8 : State-wise Annual Inflation Rates for CPI (Base: 2012 = 100) (October, 2018 to October, 2019)

Name of the State/UT	Rural			Urban			Combined		
	Oct.18 Index (Final)	Oct.19 Index (Prov.)	Inflation Rate (%)	Oct.18 Index (Final)	Oct.19 Index (Prov.)	Inflation Rate (%)	Oct.18 Index (Final)	Oct.19 Index (Prov.)	Inflation Rate (%)
Andhra Pradesh	138.5	144.8	4.55	139.4	147.1	5.52	138.8	145.6	4.90
Bihar	145.5	146.3	0.55	137.4	144.8	5.39	144.3	146.1	1.25
Chhattisgarh	144.2	145.2	0.69	139.7	145.5	4.15	142.5	145.3	1.96
Gujarat	142.4	144.6	1.54	132.9	140.9	6.02	137.0	142.5	4.01
Haryana	137.7	145.4	5.59	136.3	141.2	3.60	137.0	143.4	4.67
Jharkhand	146.4	150.1	2.53	138.6	146.7	5.84	143.4	148.8	3.77
Karnataka	143.4	150.5	4.95	145.0	153.3	5.72	144.3	152.0	5.34
Kerala	145.8	156.5	7.34	144.3	152.4	5.61	145.3	155.1	6.74
Madhya Pradesh	135.8	145.6	7.22	140.4	145.5	3.63	137.7	145.6	5.74
Maharashtra	143.5	147.9	3.07	134.9	142.0	5.26	137.8	144.0	4.50
Odisha	145.4	149.2	2.61	137.2	144.5	5.32	143.1	147.9	3.35
Punjab	139.9	148.6	6.22	135.3	140.4	3.77	137.8	144.9	5.15
Rajasthan	140.4	149.7	6.62	140.9	147.3	4.54	140.6	148.8	5.83
Tamil Nadu	143.9	151.1	5.00	142.1	150.1	5.63	142.8	150.5	5.39
Uttar Pradesh	137.9	146.3	6.09	141.0	148.3	5.18	139.0	147.0	5.76
West Bengal	145.3	150.2	3.37	139.5	146.9	5.30	142.6	148.6	4.21
All-India	142.2	148.3	4.29	138.9	146.0	5.11	140.7	147.2	4.62

Source : RBI and Labour Bureau, Government of India

Chart 1.5 : Inflation Rates in Bihar and India



India during October, 2018 to October, 2019 and the resulting annual inflation rate. Interestingly, the combined inflation rate has been the lowest in Bihar (1.25 percent), while it was 4.62 percent for India as a whole. In the rural areas, the inflation rate in Bihar (0.55 percent) again has been the lowest among all the Indian states, the national average being 4.29 percent. In contrast, for the urban areas, the inflation rate in Bihar (5.39 percent) has been higher compared to the national average (5.11 percent). This may be partially due to the high growth rate of the tertiary sector of Bihar's economy in the recent past. As is obvious, most of the activities in the tertiary sector are located in the urban areas.

APPENDIX

Table A 1.1 : Gross State Domestic Product (GSDP) and Net State Domestic Product (NSDP) of Bihar (2004-05 to 2018-19)

Year	GSDP (Rs. crore)		NSDP (Rs. crore)		Per Capita GSDP (Rs.)	
	At current Price	At constant (2004-05) Price	At current Price	At constant (2004-05) Price	At current Price	At constant (2004-05) Price
Base Year 2004-05						
2004-05	77781	77781	70167	70167	8773	8773
2005-06	82490	76466	74144	68419	9149	8481
2006-07	100737	88840	91331	80260	10994	9695
2007-08	113680	93774	102853	84415	12215	10076
2008-09	142279	107412	129690	97284	15060	11369
2009-10	162923	113158	148151	101938	16998	11806
2010-11	203555	130171	185745	117503	20944	13393
2011-12	243269	143560	222442	129521	24696	14574
2012-13	293616	158909	268902	143250	29425	15925
2013-14	343663	173409	315225	156671	34014	17163
2014-15	402283	189789	369576	171802	39341	18560
Base Year 2011-12						
2011-12	247144	247144	228497	228497	23525	23525
2012-13	282368	256851	261327	236933	26459	24068
2013-14	317101	269650	292143	246915	29251	24874
2014-15	342951	279482	315732	255739	31142	25379
2015-16	371602	296488	340119	269200	33218	26504
2016-17	422316	323004	388144	293471	37163	28424
2017-18 (P)	484740	356768	445942	324395	41992	30906
2018-19 (Q)	557490	394350	513881	359030	47541	33629

Note : Data of 2017-18 is Provisional Estimates (P) and 2018-19 Quick Estimates (Q)
Source : Directorate of Economics and Statistics, GOB

Table A 1.2 : Gross State Domestic Product (GSDP) of Bihar at Current Price (2011-12 to 2018-19)

(Rs. crore)

Sl. No.	Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 (P)	2018-19 (Q)
1.	Agriculture, forestry and fishing	62067	76700	73719	78632	84284	98546	111084	118315
1.1	Crops	42608	53365	45223	46222	48987	57760	62778	65272
1.2	Livestock	12028	14811	18316	20621	22677	25862	31196	35055
1.3	Forestry and logging	4187	4571	5010	5258	5824	7734	8264	8866
1.4	Fishing and aquaculture	3244	3953	5170	6532	6795	7191	8846	9123
2.	Mining and quarrying	199	234	1508	851	2670	2505	2574	2941
	Primary	62265	76934	75227	79483	86954	101052	113658	121256
3.	Manufacturing	14666	10351	21209	29978	25490	31962	33831	35540
4.	EGWUS*	3659	4422	3859	3313	5036	4755	4680	4923
5.	Construction	27017	27810	31848	32678	32515	35269	39974	45797
	Secondary	45341	42583	56916	65968	63040	71986	78485	86260
6.	Trade, repair, hotels & restaurants	43904	51755	52051	53410	66060	75146	85810	105100
6.1	Trade & repair services	41109	48672	48735	49959	62213	70937	81120	99845
6.2	Hotels and restaurants	2796	3083	3316	3451	3846	4209	4690	5255
7.	TSC&S*	17545	21616	26850	31889	36465	39216	42413	48346
7.1	Railways	2751	3348	3957	4725	4784	4928	4983	5073
7.2	Road transport	8405	10697	13479	15723	17565	20153	23407	28186
7.3	Water transport	49	26	17	21	22	36	34	34
7.4	Air transport	31	58	46	79	158	192	246	355
7.5	Services incidental to transport	893	1120	1425	1666	1880	2213	2533	2855
7.6	Storage	74	84	85	93	100	107	126	137
7.7	C&SRB*	5342	6282	7842	9582	11956	11587	11083	11706
8.	Financial services	8839	9774	11223	12188	13233	13459	16494	20213
9.	REID&PS*	28023	31217	34604	36675	36357	38260	41000	43843
10.	Public administration	13587	14777	15768	17203	17676	19520	26336	29255
11.	Other services	22193	28043	34046	38383	44370	51081	63763	78613
	Tertiary	134092	157182	174542	189748	214161	236684	275816	325369
12.	Total GSA	241698	276699	306685	335199	364155	409722	467960	532885
13.	Taxes on Products	17169	21185	26236	27007	34787	35291	42248	53184
14.	Subsidies on products	11724	15517	15820	19255	27340	22697	25468	28578
15.	GSDP	247144	282368	317101	342951	371602	422316	484740	557490
16.	Population (crore)	10.5	10.7	10.8	11.0	11.2	11.4	11.5	11.7
17.	Per Capita GSDP (Rs.)	23525	26459	29251	31142	33218	37163	41992	47541

Note : Data of 2017-18 is Provisional Estimates (P) and 2018-19 Quick Estimates (Q)

EGWUS = Electricity, gas, water supply & other utility services

TSC&S = Transport, storage, communication & services related to broadcasting

REID&PS = Real estate, ownership of dwelling & professional services

Source : Directorate of Economics and Statistics, GoB

Table A 1.3 : Gross State Domestic Product (GSDP) of Bihar at Constant (2011-12) Price (2011-12 to 2018-19)

(Rs. crore)

Sl. No.	Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 (P)	2018-19 (Q)
1.	Agriculture, forestry and fishing	62067	68040	59516	59349	60735	67414	71963	72393
1.1	Crops	42608	47493	37107	35254	35330	39530	41458	39853
1.2	Livestock	12028	12525	14008	15359	16281	17559	19298	20922
1.3	Forestry and logging	4187	4253	4330	4218	4353	5533	5671	5948
1.4	Fishing and aquaculture	3244	3768	4071	4518	4772	4793	5536	5670
2.	Mining and quarrying	199	216	1386	577	1789	1349	1188	1220
	Primary	62265	68256	60902	59926	62524	68764	73150	73613
3.	Manufacturing	14666	9714	18893	25958	23384	29361	29734	30632
4.	EGWUS*	3659	4017	4128	4270	4272	4628	5182	5455
5.	Construction	27017	25608	27261	26019	28669	30396	32511	35579
	Secondary	45341	39339	50282	56247	56325	64384	67427	71666
6.	Trade, repair, hotels and restaurants	43904	46729	45683	42626	50424	55501	61441	71876
6.1	Trade & repair services	41109	43945	42775	39877	47496	52404	58094	68336
6.2	Hotels and restaurants	2796	2784	2908	2749	2927	3096	3347	3541
7.	TSC&S*	17545	20372	23473	26054	29428	30358	32636	35498
7.1	Railways	2751	3346	3965	4092	4070	3529	4239	4328
7.2	Road transport	8405	9962	11373	12678	14006	15637	17617	20087
7.3	Water transport	49	24	15	17	18	28	26	24
7.4	Air transport	31	54	38	64	126	149	185	252
7.5	Services incidental to transport	893	1043	1202	1344	1499	1717	1906	2035
7.6	Storage	74	79	71	75	80	83	95	99
7.7	C&SRB*	5342	5863	6808	7785	9629	9214	8568	8672
8.	Financial services	8839	9580	10273	11653	12258	12506	14236	16205
9.	REID&PS*	28023	28686	29819	30739	29991	31079	32658	34244
10.	Public administration	13587	13350	12752	13171	13132	14097	18825	20364
11.	Other services	22193	25297	27478	29002	32008	35419	42600	51119
	Tertiary	134092	144015	149478	153245	167240	178960	202397	229307
12.	Total GSVA	241698	251609	260662	269418	286090	312108	342974	374585
13.	Taxes on Products	17169	19588	22638	26793	30900	30532	34732	42722
14.	Subsidies on products	11724	14347	13650	16729	20501	19636	20937	22956
15.	GSDP	247144	256851	269650	279482	296488	323004	356768	394350
16.	Population (crore)	10.5	10.7	10.8	11.0	11.2	11.4	11.5	11.7
17.	Per Capita GSDP (Rs.)	23525	24068	24874	25379	26504	28424	30906	33629

Note : Data of 2017-18 is Provisional Estimates and 2018-19 Quick Estimates

Source : Directorate of Economics and Statistics, GoB

Table A 1.4 : Net State Domestic Product (NSDP) of Bihar at Current Price (2011-12 to 2018-19)

(Rs. crore)

Sl. No.	Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 (P)	2018-19 (Q)
1.	Agriculture, forestry and fishing	57852	71802	67874	72063	77265	90993	102970	109178
1.1	Crops	39053	49248	40320	40687	42987	51233	55796	57410
1.2	Livestock	11795	14525	17975	20253	22321	25482	30780	34586
1.3	Forestry and logging	4141	4520	4953	5206	5770	7674	8192	8785
1.4	Fishing and aquaculture	2862	3509	4625	5917	6187	6605	8201	8397
2.	Mining and quarrying	174	203	1291	724	2234	2104	2520	2879
	Primary	58025	72005	69166	72786	79498	93097	105490	112058
3.	Manufacturing	12681	8450	19073	27523	23138	29501	31158	32531
4.	EGWUS*	2431	2892	2554	2145	3390	3167	3225	3284
5.	Construction	25764	26372	29909	30757	30582	33106	37432	42935
	Secondary	40876	37713	51536	60426	57110	65774	71815	78749
6.	Trade, repair, hotels and restaurants	43256	50952	51087	52321	64039	72838	83101	102049
6.1	Trade & repair services	40564	47998	47926	49031	60445	68901	78717	97139
6.2	Hotels and restaurants	2692	2955	3161	3290	3594	3937	4384	4910
7.	TSC&S*	14845	18612	22530	26925	30841	32801	35095	40105
7.1	Railways	2022	2558	2996	3516	3432	3410	3327	3208
7.2	Road transport	7582	9771	12282	14474	16224	18492	21343	25862
7.3	Water transport	44	20	10	13	14	25	23	21
7.4	Air transport	15	40	22	53	130	162	208	312
7.5	Services incidental to transport	761	971	1233	1469	1645	1924	2197	2477
7.6	Storage	63	74	72	78	84	90	102	110
7.7	C&SRB*	4359	5178	5916	7323	9312	8699	7894	8115
8.	Financial services	8700	9601	11035	11963	12960	13162	16131	19804
9.	REID&PS*	25298	28025	30922	32624	32005	33578	35796	38060
10.	Public administration	10485	11490	12339	13598	14163	15794	21659	23990
11.	Other services	21567	27259	33112	37338	42056	48506	60075	74460
	Tertiary	124151	145940	161025	174769	196064	216679	251857	298468
12.	Total NSVA	223052	255658	281727	307980	332672	375550	429162	489275
13.	Taxes on Products	17169	21185	26236	27007	34787	35291	42248	53184
14.	Subsidies on products	11724	15517	15820	19255	27340	22697	25468	28578
15.	NSDP	228497	261327	292143	315732	340119	388144	445942	513881
16.	Population (crore)	10.5	10.7	10.8	11.0	11.2	11.4	11.5	11.7
17.	Per Capita NSDP (Rs.)	21750	24487	26948	28671	30404	34156	38631	43822

Note : Data of 2017-18 is Provisional Estimates and 2018-19 Quick Estimates

Source : Directorate of Economics and Statistics, GoB

Table A 1.5 : Net State Domestic Product (NSDP) of Bihar at Constant (2011-12) Price (2011-12 to 2018-19)

(Rs. crore)

Sl. No.	Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 (P)	2018-19 (Q)
1.	Agriculture, forestry and fishing	57852	63491	54487	53929	55146	61586	65800	65670
1.1	Crops	39053	43675	32908	30738	30640	34607	36312	34238
1.2	Livestock	11795	12260	13706	15042	15962	17230	18950	20543
1.3	Forestry and logging	4141	4206	4280	4173	4305	5479	5608	5879
1.4	Fishing and aquaculture	2862	3350	3593	3975	4240	4271	4930	5009
2.	Mining and quarrying	174	187	1187	468	1424	984	1140	1168
	Primary	58025	63678	55674	54396	56570	62570	66941	66838
3.	Manufacturing	12681	7896	16913	23761	21270	27153	27406	28092
4.	EGWUS*	2431	2542	2904	3226	2798	3179	3453	3568
5.	Construction	25764	24235	25437	24238	26866	28333	30133	32985
	Secondary	40876	34674	45253	51225	50934	58664	60992	64645
6.	Trade, repair, hotels and restaurants	43256	45972	44805	41669	48617	53358	59025	69240
6.1	Trade & repair services	40564	43309	42038	39062	45915	50502	55933	65978
6.2	Hotels and restaurants	2692	2663	2767	2607	2702	2856	3092	3262
7.	TSC&S*	14845	17490	19386	21654	24507	24762	26426	28722
7.1	Railways	2022	2605	3088	3040	2893	2226	2864	2828
7.2	Road transport	7582	9077	10265	11514	12756	14114	15791	18095
7.3	Water transport	44	18	7	10	10	18	16	13
7.4	Air transport	15	37	17	39	100	122	152	215
7.5	Services incidental to transport	761	899	1021	1169	1293	1465	1635	1740
7.6	Storage	63	68	60	62	66	68	78	81
7.7	C&SRB*	4359	4785	4927	5819	7389	6749	5890	5750
8.	Financial services	8700	9412	10095	11454	12021	12246	13926	15867
9.	REID&PS*	25298	25724	26548	27285	26254	27121	28496	29704
10.	Public administration	10485	10191	9553	9910	9933	10708	14696	15859
11.	Other services	21567	24550	26613	28082	29967	33145	40099	48390
	Tertiary	124151	133339	137000	140053	151297	161340	182668	207782
12.	Total NSVA	223052	231691	237927	245674	258801	282575	310600	339265
13.	Taxes on Products	17169	19588	22638	26793	30900	30532	34732	42722
14.	Subsidies on products	11724	14347	13650	16729	20501	19636	20937	22956
15.	NSDP	228497	236933	246915	255739	269200	293471	324395	359030
16.	Population (crore)	10.5	10.7	10.8	11.0	11.2	11.4	11.5	11.7
17.	Per Capita NSDP (Rs.)	21750	22201	22776	23223	24064	25825	28101	30617

Note : Data of 2017-18 is Provisional Estimates (P) and 2018-19 Quick Estimates (Q)

Source : Directorate of Economics and Statistics, GoB

Table A 1.6 : District-wise Per Capita Gross District Domestic Product (2004-05) Price (2007-08 to 2011-12)

(Rupees)

District	2007-08	2008-09	2009-10	2010-11	2011-12
Patna	43448 (1)	48719 (1)	53428 (1)	57823 (1)	63063 (1)
Nalanda	8219 (14)	9152 (11)	9787 (10)	10971 (11)	12561 (8)
Bhojpur	8775 (8)	10146 (8)	10134 (8)	11537 (9)	12459 (10)
Buxar	8368 (12)	8992 (15)	8812 (18)	9732 (20)	11289 (15)
Rohtas	9544 (7)	10950 (6)	10908 (7)	12265 (6)	13909 (6)
Kaimur	7564 (21)	8441 (22)	7785 (27)	9539 (22)	10412 (24)
Gaya	8660 (9)	9135 (12)	9519 (15)	10504 (18)	11897 (13)
Jehanabad	7490 (24)	8588 (19)	8478 (22)	9322 (24)	11182 (17)
Arwal	6475 (33)	7028 (35)	7283 (35)	8133 (35)	9125 (34)
Nawada	6739 (31)	7409 (32)	7602 (30)	8437 (31)	9560 (30)
Aurangabad	7575 (20)	7922 (29)	8189 (23)	9293 (25)	11012 (18)
Saran	7522 (23)	7938 (28)	8559 (20)	9576 (21)	10615 (23)
Siwan	7377 (26)	8864 (16)	8042 (26)	9192 (26)	10685 (22)
Gopalganj	7646 (17)	8059 (26)	8543 (21)	10386 (19)	12129 (12)
W. Champaran	8476 (11)	9484 (10)	9706 (11)	10577 (17)	9971 (27)
E. Champaran	6223 (35)	8457 (21)	7571 (31)	8790 (29)	10735 (21)
Muzaffarpur	9814 (5)	11602 (5)	12159 (5)	14082 (5)	15402 (5)
Sitamarhi	6180 (37)	7301 (33)	7456 (32)	8274 (33)	9538 (31)
Sheohar	5541 (38)	6128 (38)	5438 (38)	6208 (38)	7092 (38)
Vaishali	7728 (16)	9604 (9)	9937 (9)	11591 (8)	12490 (9)
Darbhanga	7614 (18)	8516 (20)	9036 (16)	10798 (12)	10932 (19)
Madhubani	6216 (36)	7643 (30)	7455 (33)	10607 (15)	9241 (33)
Samastipur	7559 (22)	8729 (18)	8843 (17)	10705 (14)	10762 (20)
Begusarai	12419 (3)	15001 (3)	14235 (4)	18433 (3)	17587 (3)
Munger	15791 (2)	17034 (2)	18554 (2)	21011 (2)	22051 (2)
Sheikhpura	7209 (28)	8105 (25)	7775 (28)	8377 (32)	9687 (29)
Lakhisarai	9549 (6)	10209 (7)	10950 (6)	11870 (7)	13073 (7)
Jamui	7584 (19)	8028 (27)	8186 (24)	8944 (28)	10166 (25)
Khagaria	8517 (10)	9111 (13)	9642 (12)	10603 (16)	11515 (14)
Bhagalpur	12097 (4)	13351 (4)	14253 (3)	15870 (4)	17324 (4)
Banka	6882 (30)	7596 (31)	7724 (29)	7756 (37)	9269 (32)
Saharsa	8164 (15)	8744 (17)	9591 (14)	11268 (10)	12197 (11)
Supaul	6382 (34)	6790 (36)	7043 (36)	8193 (34)	8492 (37)
Madhepura	6920 (29)	6602 (37)	6979 (37)	8096 (36)	8609 (36)
Purnea	7419 (25)	8228 (23)	8743 (19)	9357 (23)	10099 (26)
Kishanganj	7312 (27)	8120 (24)	8085 (25)	9126 (27)	9928 (28)
Araria	6635 (32)	7251 (34)	7376 (34)	8534 (30)	8776 (35)
Katihar	8267 (13)	9060 (14)	9594 (13)	10721 (13)	11278 (16)
Bihar	10076	11369	11806	13393	14574

Note : Figures in parenthesis denote rank
Source : Directorate of Economic and Statistics, GoB

Table A 1.7 : District-wise Consumption of Petroleum Products (2014-15 to 2018-19)

(Figures in TMT)

District	Petrol		Diesel		LPG		Consumption (MT) per 1000 person		
	Average (2014-2019)	2018-19	Average (2014-2019)	2018-19	Average (2014-2019)	2018-19	Petrol	Diesel	LPG
Patna	80.5 (13.1)	99.8	229.8 (10.3)	263.5	125.9 (13.4)	148.1	13.8	39.4	21.6
Nalanda	12.8 (2.1)	17.1	58.5 (2.6)	73.1	25.3 (2.7)	32.3	4.4	20.3	8.8
Bhojpur	14.4 (2.3)	19.2	55.4 (2.5)	63.2	27.9 (3)	33.9	5.3	20.3	10.2
Buxar	9.6 (1.6)	12.2	34.9 (1.6)	33.3	14.8 (1.6)	18.6	5.6	20.5	8.7
Rohtas	18.1 (2.9)	23.8	78.8 (3.5)	81.7	26.5 (2.8)	33.6	6.1	26.6	9.0
Kaimur	7.7 (1.2)	9.3	31.9 (1.4)	27	10 (1.1)	14.5	4.7	19.6	6.1
Gaya	23.2 (3.8)	30.5	87.6 (3.9)	99.1	33.4 (3.5)	44.2	5.3	19.9	7.6
Jehanabad	4.6 (0.7)	6.2	20.3 (0.9)	25.1	10.7 (1.1)	12.9	4.1	18.0	9.5
Arwal	2.9 (0.5)	4	11.3 (0.5)	12.7	5.1 (0.5)	6.7	4.1	16.1	7.3
Nawada	7.9 (1.3)	10.8	37.3 (1.7)	44.5	17.1 (1.8)	22	3.6	16.8	7.7
Aurangabad	12.7 (2.1)	16.8	69.1 (3.1)	86.6	17.3 (1.8)	23.1	5.0	27.2	6.8
Saran	23.7 (3.9)	31.4	95.2 (4.3)	100.4	36 (3.8)	46.3	6.0	24.1	9.1
Siwan	23.3 (3.8)	28.5	55.2 (2.5)	54.5	32.9 (3.5)	41.1	7.0	16.6	9.9
Gopalganj	19.5 (3.2)	23.5	47.5 (2.1)	44.5	29 (3.1)	36.4	7.6	18.5	11.3
E. Champaran	30.9 (5)	38.2	105.3 (4.7)	102.7	45.3 (4.8)	62.3	6.1	20.6	8.9
W. Champaran	22.8 (3.7)	29	70.3 (3.2)	73.5	31.6 (3.4)	43.3	5.8	17.9	8.0
Muzaffarpur	38.2 (6.2)	51.1	138.9 (6.2)	154.3	55.1 (5.9)	71.9	8.0	28.9	11.5
Sitamarhi	14.5 (2.3)	17.7	44.8 (2)	47.1	29.7 (3.2)	41.5	4.2	13.1	8.7
Sheohar	2 (0.3)	2.9	5.4 (0.2)	6.4	5.4 (0.6)	7.7	3.0	8.2	8.2
Vaishali	26.1 (4.2)	33.4	78.6 (3.5)	81.9	38.7 (4.1)	47.2	7.5	22.5	11.1
Darbhanga	21.2 (3.5)	28.9	63 (2.8)	76.3	40.5 (4.3)	54.1	5.4	16.0	10.3
Madhubani	22.7 (3.7)	27.7	54 (2.4)	59.8	37.1 (3.9)	53.2	5.1	12.0	8.3
Samastipur	22.9 (3.7)	30.9	84.1 (3.8)	97	32.7 (3.5)	46.8	5.4	19.7	7.7
Begusarai	15.4 (2.5)	20	108.8 (4.9)	115.6	33.6 (3.6)	48.7	5.2	36.6	11.3
Munger	6.2 (1)	7.8	32 (1.4)	33.9	15.7 (1.7)	19	4.5	23.4	11.5
Sheikhpura	2.6 (0.4)	3.6	17.9 (0.8)	26	4.5 (0.5)	6.4	4.1	28.1	7.1
Lakhisarai	3.2 (0.5)	4.3	19.2 (0.9)	22.4	6.9 (0.7)	8.7	3.2	19.2	6.9
Jamui	6.4 (1)	8.4	23.4 (1)	27	10.1 (1.1)	15.1	3.6	13.3	5.7
Khagaria	5.9 (1)	7.9	32.7 (1.5)	35.9	10.2 (1.1)	14.5	3.5	19.6	6.1
Bhagalpur	17 (2.8)	21.8	76.2 (3.4)	85.7	29.6 (3.1)	38.5	5.6	25.1	9.7
Banka	6.9 (1.1)	9	25.5 (1.1)	28.7	10.1 (1.1)	14.2	3.4	12.5	5.0
Saharsa	8.8 (1.4)	12	37.7 (1.7)	42	12.8 (1.4)	16.9	4.6	19.8	6.7
Supaul	11.5 (1.9)	15.2	35.6 (1.6)	40.7	11.9 (1.3)	17.3	5.2	16.0	5.3
Madhepura	10 (1.6)	13.5	33.7 (1.5)	37.3	11.5 (1.2)	15.1	5.0	16.8	5.7
Purnea	20.5 (3.3)	27.7	83 (3.7)	90.4	18.5 (2)	25.2	6.3	25.4	5.7
Kishanganj	9.3 (1.5)	11.2	21.3 (1)	21.3	8 (0.8)	11.8	5.5	12.6	4.7
Araria	16.4 (2.7)	20.3	53 (2.4)	52.4	13.4 (1.4)	19	5.8	18.9	4.8
Katihar	13.6 (2.2)	17.4	70.4 (3.2)	74.4	16.9 (1.8)	22.8	4.4	22.9	5.5
Bihar	615.6 (100)	793	2227.4 (100)	2441.9	941.6 (100)	1234.8	5.9	21.4	9.0

Note : Figures in parenthesis present share of Bihar

Source : Indian Oil Corporation

Table A 1.8 : District-wise Small Savings in Post Offices and Public Provident Fund (2016-17 to 2018-19)

(Rs. crore)

District	Per Capita Postal Savings (Rs)	2016-17		2017-18		2018-19		Average of Achievement (2016-19)
		Target	Achievement	Target	Achievement	Target	Achievement	
Patna	982.6	500	525.83	545	479.14	549.00	716.13	573.7 (18.0)
Nalanda	597.0	270	244.12	262	162.40	186.00	109.01	171.8 (5.4)
Bhojpur	421.5	195	88.73	115	106.08	122.00	150.24	115 (3.6)
Buxar	627.1	85	86.48	93	106.32	122.00	128.15	107 (3.4)
Rohtas	431.4	125	125.03	134	113.73	130.00	144.23	127.7 (4.0)
Kaimur	344.3	50	51.36	55	50.28	58.00	66.27	56 (1.8)
Gaya	265.7	80	94.94	102	104.00	119.00	151.25	116.7 (3.7)
Jehanabad	526.1	40	47.79	51	51.22	59.00	78.73	59.2 (1.9)
Arwal	382.4	20	22.13	24	24.25	28.00	34.10	26.8 (0.8)
Nawada	425.4	120	125.98	135	55.76	64.00	101.41	94.4 (3.0)
Aurangabad	327.9	70	59.35	64	70.14	80.00	120.51	83.3 (2.6)
Saran	750.3	260	265.49	270	307.76	353.00	316.36	296.5 (9.3)
Siwan	360.9	140	121.40	140	115.68	133.00	123.53	120.2 (3.8)
Gopalganj	322.0	110	78.61	89	75.98	87.00	92.89	82.5 (2.6)
E. Champaran	154.3	65	66.84	72	79.64	91.00	89.57	78.7 (2.5)
W. Champaran	97.3	50	46.36	50	18.58	21.00	49.84	38.3 (1.2)
Muzzaffarpur	294.7	110	112.67	121	131.16	150.00	180.65	141.5 (4.4)
Sitamarhi	131.1	45	34.85	37	35.28	40.00	64.59	44.9 (1.4)
Sheohar	175.2	10	9.18	10	9.19	11.00	16.14	11.5 (0.4)
Vaishali	341.1	120	111.56	120	115.83	133.00	130.21	119.2 (3.7)
Darbhanga	296.9	115	115.64	124	121.45	139.00	113.52	116.9 (3.7)
Madhubani	121.9	80	59.29	64	53.97	62.00	50.97	54.7 (1.7)
Samastipur	128.6	90	74.96	80	64.74	74.00	24.82	54.8 (1.7)
Begusarai	191.2	60	49.16	53	48.90	56.00	72.25	56.8 (1.8)
Munger	421.9	75	62.40	67	57.23	66.00	53.32	57.7 (1.8)
Sheikhpura	399.2	25	20.21	22	18.99	22.00	37.08	25.4 (0.8)
Lakhisarai	199.8	25	20.21	22	18.99	22.00	20.94	20 (0.6)
Jamui	151.1	25	26.17	28	21.29	24.00	32.42	26.6 (0.8)
Khagaria	88.2	15	12.04	13	13.66	16.00	18.27	14.7 (0.5)
Bhagalpur	271.3	105	79.83	86	82.25	94.00	85.13	82.4 (2.6)
Banka	106.2	25	21.52	23	25.31	29.00	17.97	21.6 (0.7)
Saharsa	181.0	40	33.67	36	28.49	33.00	41.11	34.4 (1.1)
Supaul	138.2	35	37.66	40	22.60	26.00	32.03	30.8 (1.0)
Madhepura	115.4	30	22.73	25	19.12	22.00	27.41	23.1 (0.7)
Purnea	136.0	35	49.78	53	32.66	37.00	50.71	44.4 (1.4)
Kishanganj	55.0	10	11.78	13	5.66	6.00	10.45	9.3 (0.3)
Araria	52.3	10	15.73	17	10.73	12.00	17.55	14.7 (0.5)
Katihar	112.0	35	41.57	45	21.12	24.00	40.59	34.4 (1.1)
Bihar	306.2	3300	3073.05	3300	2879.58	3300.00	3610.38	3187.7 (100)

Note : Figures in parenthesis present share of Bihar

Source : Department of Finance, GoB

CHAPTER - II

STATE FINANCES

दैवम् विनतिप्रयत्नम् करोति यत्तद्विफलम्।

A well-planned work produces good results, even in adverse condition.

— चाणक्य

— Chanakya

Abstract

Bihar has consistently shown fiscal prudence in the last few years where deficits are within the stipulated thresholds. The management of state finance has adhered to the resolutions of the Bihar Fiscal Responsibility and Budget Management Act, 2006. Fiscal indicators suggest that the means of state finances are sustainable for the current level of expenditure. The fiscal deficit was 2.68 percent of GSDP, revenue surplus 1.34 percent of GSDP, the outstanding public debt liability was 32.34 percent of GSDP and net interest payment was 6.61 percent of the total receipt in revenue account of the state in 2018-19. Both total receipt and total expenditure increased in the state. The revenue receipt increased by 12 percent whereas revenue expenditure increased by 21.7 percent in 2018-19. However, capital expenditure declined by 12 percent in 2018-19. The share of social services expenditure in total expenditure increased by two percentage points during 2018-19 over the previous year. The overall position of the state finance in Bihar was in good shape during 2018-19.

The management of the state finances in Bihar in 2018-19 has adhered to the resolutions of the Bihar Fiscal Responsibility and Budget Management Act, 2006. The overall position of the state's finances was in good shape at the end of the financial year 2018-19. The fiscal deficit was 2.68 percent of GSDP, revenue surplus 1.34 percent of GSDP and the outstanding public debt liability of the state government was 32.34 percent of GSDP during the year. Net interest payment was 6.61 percent of the total receipt in revenue account of the state in 2018-19, which has remained within the 10 percent limit, as recommended by the 14th Finance Commission.

Given the limited revenue receipt from its own sources, the State Government has been dependent on the central transfers and the grants for resources. These transfers are mostly as per

the recommendations of the Finance Commission, and the current financial year (2019-20) is the last year to have fiscal implications of the recommendations by the 14th Finance Commission of the Central Government. The 15th Finance Commission has submitted its report for the year 2020-21. As per their recommendation, the share of Bihar in the total shareable resource pool has increased from 9.67 percent to 10.06 percent.

The year 2018-19 was the first full financial year when the Goods and Services Tax (GST) collection replaced revenue from multiple taxes in the country after its implementation in July 2017. The GST collection of the states and union territories remained lower than the target, and the compensations were made by the Central Government to the states on account of shortfall in the revenue collection from the promised target at the time of implementation of the GST. The current economic slowdown has affected revenue collection under GST in 2019-20 in the State. The shortfall in revenue collection of the states through the GST is to be compensated by the Central Government. The State needs to put in place a system of increasing revenues from its own sources.

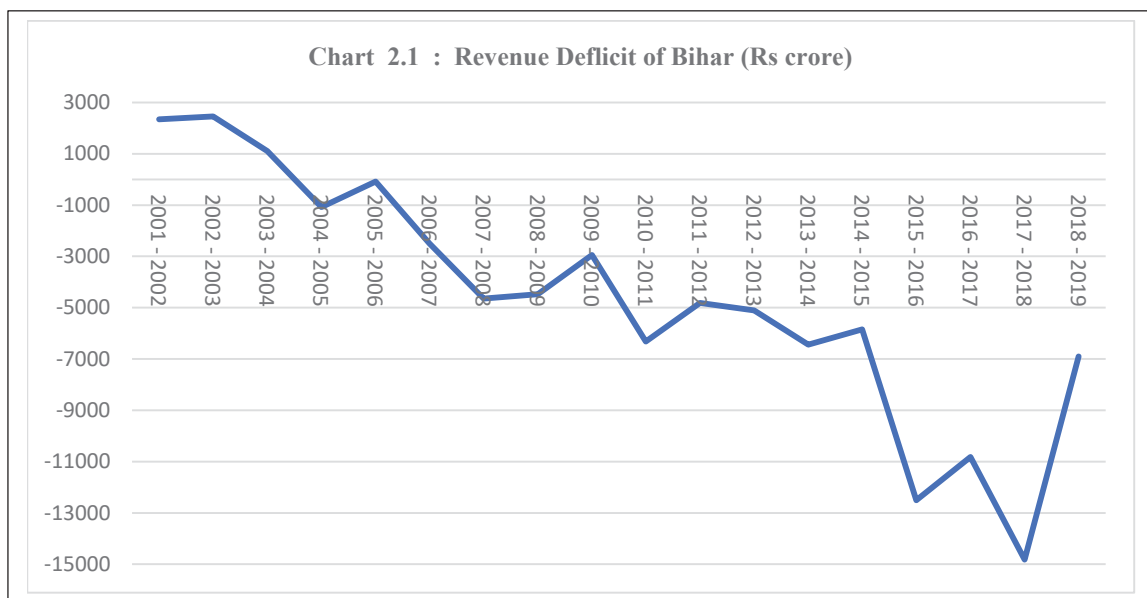
In an attempt to improve the efficiency in financial management, the State Government has introduced Comprehensive Financial Management System (CFMS) on April 1, 2019, which will make all financial activities in the state online and paperless. In another development in 2018-19, the State Government made it mandatory for all the departments to make all the purchases through the GeM Portal.

2.1 Overview of Financial Position

An overview of the financial position of the State Government is presented in this section. The receipt and expenditure for the State Government are summarised in Table 2.1. The actual figures have been used for the financial years 2014-15 to 2018-19 and the budget estimates for 2019-20. The financial position of Bihar is also compared with the other major states of the country using some of the fiscal indicators. The data on major fiscal indicators for different states is reported in Table 2.2. In this table, actual figures have been used only for 2016-17, while Revised Estimates (RE) and Budget Estimates (BE) are used for 2017-18 and 2018-19 respectively.

The total revenue receipt and capital receipt of Bihar in 2018-19 was Rs 1,31,793 crore and Rs 20,494 crore respectively. The revenue receipt in 2018-19 was 12.2 percent higher than the previous year. Both revenue and total expenditure also increased in the state during 2018-19 over

the previous year. The revenue expenditure and the total expenditure in the state were Rs 1,24,897 crore and Rs 1,54,655 crore respectively, in 2018-19. The capital expenditure decreased by 12 percent to Rs 29,759 crore in 2018-19 over the previous year. The revenue expenditure increased by 21.7 percent during the 2018-19.



Source : Finance Accounts and State Government Budgets

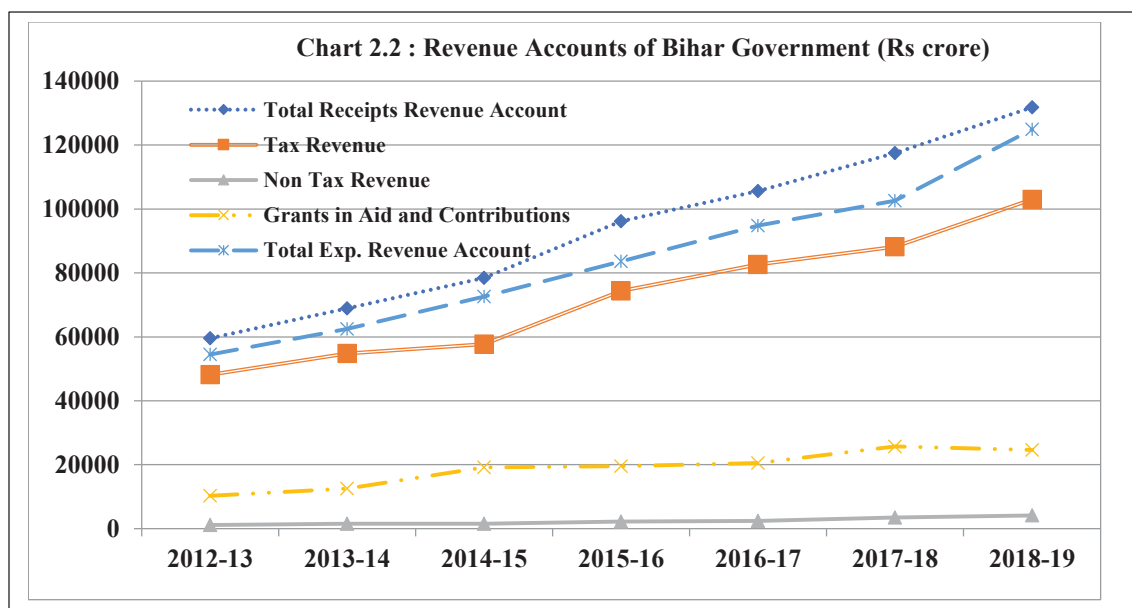
Bihar has consistently been a revenue surplus state since 2004-05 (Chart 2.1). The revenue surplus for Bihar was 1.34 percent of the GSDP in 2018-19. Also, revenue surplus in Bihar increased continuously till 2014-15 and then jumped by 153 percent to reach an all-time high of Rs 14,823 crore in 2017-18. However, it declined by 52.5 percent to reach the figure of Rs 6897 crore in 2018-19. It is projected to be Rs 21,517 crore in the budget estimate of 2019-20.

All the components of the revenue receipt have shown an increase in 2018-19 over the previous year (Chart 2.2). The total receipt in the revenue account of Bihar increased by 12.2 percent over the previous year to become Rs 1,31,793 crore in 2018-19. The tax revenues increased by Rs 14,791 crore in 2018-19 to reach Rs 1,03,011 crore, which is 16.8 percent higher than the previous year. The non-tax revenue was only three percent of the total revenue receipt in the state. It was Rs 4131 crore during 2018-19, after an increase of 17.8 percent over the previous year. The tax and non-tax revenues projected in the budgeted estimates for 2019-20 are Rs 1,22,922 crore and Rs 4,806 crore respectively. The receipts under Grants-in-aid and contributions from the Central

Government declined to Rs 24,652 crore in 2018-19, from Rs 25,720 crore in the previous year. It is projected to increase to Rs 49,019 crore in the budgeted estimate for 2019-20.

The composition of the revenue receipt in Bihar for the financial years 2017-18 and 2018-19 is shown in Chart 2.3. During this period, the share of tax revenue has increased from 75 percent to 78 percent, whereas the share of Grants-in-Aid and contribution declined from 22 percent to 19 percent. The share of non-tax revenue has remained unchanged at three percent.

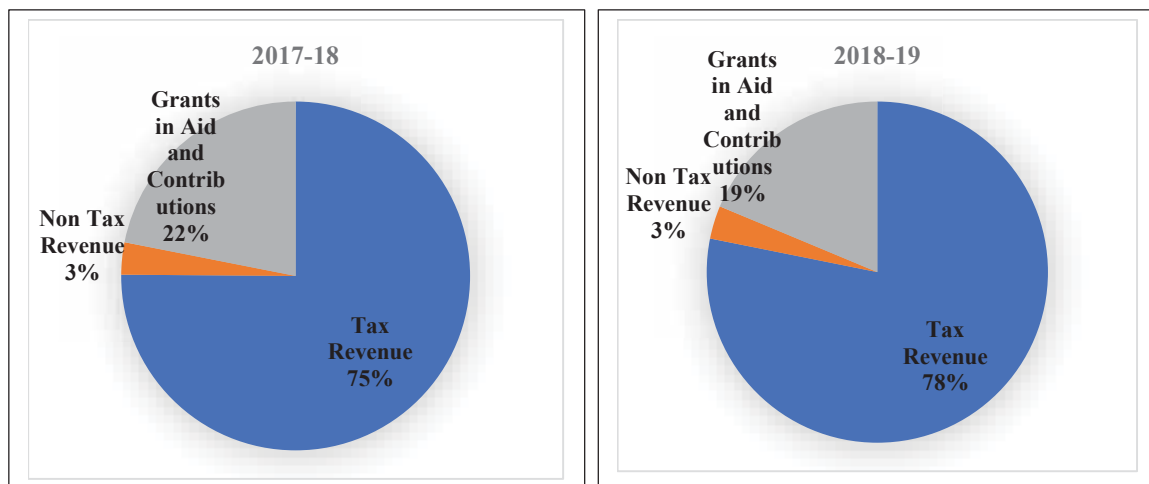
The Tax-GSDP ratio in the state increased to 20.0 percent in 2018-19 from 18.2 percent in 2017-18. It is projected to be 21.5 percent in the budgeted estimate for 2019-20. The receipt from Grants-in-Aid and Contributions came down from 5.3 percent of GSDP in 2017-18 to 4.8 percent in 2018-19. It is projected to be 8.6 percent of GSDP in the budgeted estimate for 2019-20.



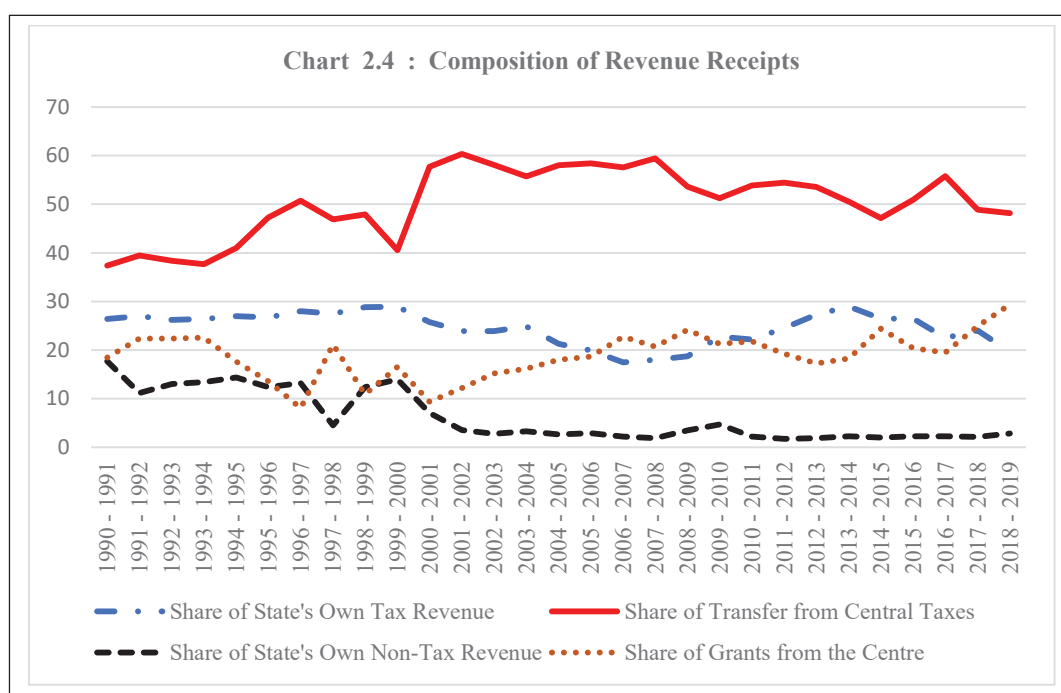
Source : Finance Accounts and State Government Budgets

The share of different components in total revenue receipt for Bihar during 1990-91 to 2018-19 is shown in Chart 2.4. A significant change in the composition is observed after 1999-2000. The share of the revenue from the state's own resources came down significantly after the creation of Jharkhand as a separate state, mainly on account of the drop in non-tax revenue from own resources. The contribution of state's own tax revenue in total revenue receipt also declined gradually till 2007-08, after which it recovered. It has again been falling since 2013-14. Therefore, Bihar has largely been dependent on transfers from the Central Government for its revenue receipts since 2000-01.

Chart 2.3 : Receipts in revenue account during 2017-18 and 2018-19



Source : Finance Accounts and State Government Budgets

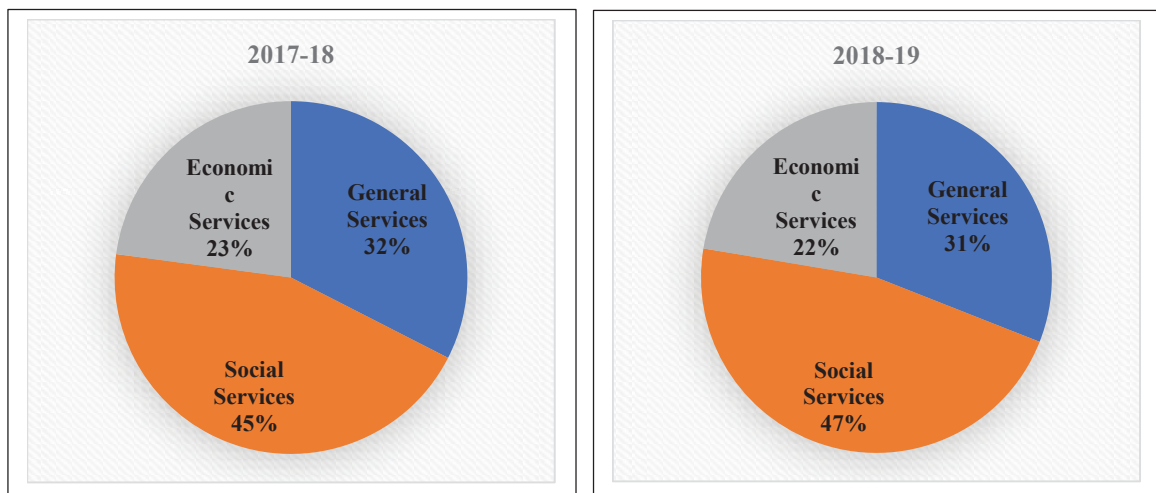


Source : Finance Accounts and State Government Budgets

The revenue expenditure in the state was at Rs 1,24,897 crore in 2018-19, which is an increase of Rs 22,273 crore over the previous year. The expenditure on interest payments increased from

Rs 9054 crore in 2017-18 to Rs. 10,071 crore in 2018-19. The social services expenditure increased by 27.3 percent to Rs 58,284 crore in 2018-19 over the previous year. The composition of expenditure in revenue account for years 2017-18 and 2018-19 is shown in Chart 2.5. In 2018-19, the share of social services expenditure has increased by two percentage points, whereas the share of economic services and general services expenditures declined by one percentage point each.

Chart 2.5 : Sectoral expenditure in revenue account during 2017-18 and 2018-19



Source : Finance Accounts and State Government Budgets

The total borrowing by the state in 2018-19 was Rs 18,668 crore, compared to Rs 13,169 crore and Rs 21,577 crore during 2017-18 and 2016-17 respectively. The outstanding debt as a percentage of GSDP has remained at almost the same level in the last three years. The outstanding debt was 32.8 percent of GSDP in 2018-19. It is projected to be 32.5 percent of GSDP in the budgeted estimate for 2019-20. The revenue expenditure on account of interest payment has been increasing over the years. It was Rs 10,071 crore in 2018-19, compared to Rs 9054 crore during 2017-18.

In a significant development, there was an increase of 55.4 percent from the previous year in the repayment of public debt by the State Government during 2018-19. The repayment of public debt was Rs 7230 crore in 2018-19, compared to Rs 4654 crore in 2017-18. A summary of the state finances of Bihar for the period 2014-15 to 2018-19 along with the budgeted estimate for 2019-20 are reported in Table 2.1.

Table 2.1 : Receipts and Expenditure (2014-15 to 2019-20)

(Rs crore)

Sl. No.	Item	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
1	Total Receipts Revenue Account	78418	96123	105585	117447	131793	176748
a	Tax Revenue	57713	74372	82623	88220	103011	122922
b	Non Tax Revenue	1558	2186	2403	3507	4131	4806
c	Grants in Aid and Contributions	19146	19566	20559	25720	24652	49019
2	Total Exp. Revenue Account	72570	83616	94765	102624	124897	155231
a	General Services, of which	26408	27972	30607	33374	38691	46146
	Interest Payments	6129	7098	8191	9054	10071	10723
b	Social Services	31713	35943	40737	45769	58284	75147
c	Economic Services	14445	19696	23417	23476	27918	33931
d	Grants-in-aid	4	4	4	4	4	6
3	Revenue Deficit	-5848	-12507	-10819	-14823	-6897	-21517
4	Capital Receipts	15411	18402	21600	13191	20494	24837
a	Public Debt etc.	13918	18383	21577	13169	18668	24421
b	Recovery of Loan and Advances	1493	19	23	22	1825	416
5	Capital Expenditure	22128	28712	31537	33803	29759	45270
a	Capital Outlay	18150	23966	27208	28907	21058	36593
b	Loans and Advances	369	621	114	243	1471	1442
c	Public Debt.	3609	4125	4215	4654	7230	7236
6	Total Expenditure	94698	112328	126302	136427	154655	200501
a	Plan Expenditure	43939	53732	60840	65027	69772	101391
b	Non Plan Expenditure	50759	58596	65462	71400	84884	99110
7	Gross Fiscal Deficit	11178	12062	16480	14305	13807	16101
8	Primary Deficit	5050	4964	8289	5251	3736	5378
9	Total Borrowings	13918	18383	21577	13169	18668	24421
a	Internal Debt Receipt	13199	17565	20065	11771	16134	21736
b	Loans from Central Government	718	818	1512	1399	2534	2685
10	Repayment of Public Debt	3609	4125	4215	4654	7230	7236
11	Debt Outstanding	99056	116578	138722	156777	168921	186106
12	GSDP	342951	371602	422316	484740	515634	572827
As percentage of GSDP							
1	Total Receipts Revenue Account	22.9	25.9	25.0	24.2	25.6	30.9
a	Tax Revenue	16.8	20.0	19.6	18.2	20.0	21.5
b	Non Tax Revenue	0.5	0.6	0.6	0.7	0.8	0.8
c	Grants in Aid and Contributions	5.6	5.3	4.9	5.3	4.8	8.6
2	Total Exp. Revenue Account	21.2	22.5	22.4	21.2	24.2	27.1
a	General Services, of which	7.7	7.5	7.2	6.9	7.5	8.1
	Interest Payments	1.8	1.9	1.9	1.9	2.0	1.9
b	Social Services	9.2	9.7	9.6	9.4	11.3	13.1
c	Economic Services	4.2	5.3	5.5	4.8	5.4	5.9
	Grants-in-aid	0.0	0.0	0.0	0.0	0.0	0.0
3	Revenue Deficit	-1.7	-3.4	-2.6	-3.1	-1.3	-3.8
4	Capital Receipts	4.5	5.0	5.1	2.7	4.0	4.3
a	Public Debt etc.	4.1	4.9	5.1	2.7	3.6	4.3
b	Recovery of Loan and Advances	0.4	0.0	0.0	0.0	0.4	0.1
5	Capital Expenditure	6.5	7.7	7.5	7.0	5.8	7.9
a	Capital Outlay	5.3	6.4	6.4	6.0	4.1	6.4
b	Loans and Advances	0.1	0.2	0.0	0.1	0.3	0.3
c	Public Debt.	1.1	1.1	1.0	1.0	1.4	1.3
6	Total Expenditure	27.6	30.2	29.9	28.1	30.0	35.0
a	Plan Expenditure	12.8	14.5	14.4	13.4	13.5	17.7
b	Non Plan Expenditure	14.8	15.8	15.5	14.7	16.5	17.3
7	Gross Fiscal Deficit	3.3	3.2	3.9	3.0	2.7	2.8
8	Primary Deficit	1.5	1.3	2.0	1.1	0.7	0.9
9	Total Borrowings	4.1	4.9	5.1	2.7	3.6	4.3
a	Internal Debt Receipt	3.8	4.7	4.8	2.4	3.1	3.8
b	Loans from Central Government	0.2	0.2	0.4	0.3	0.5	0.5
10	Repayment of Public Debt*	1.1	1.1	1.0	1.0	1.4	1.3
11	Debt Outstanding	28.9	31.4	32.8	32.3	32.8	32.5

Source : State Government Budgets

2.2 Fiscal Performance

The fiscal performance of the State Government is compared with some major states of the country in this section, using the following indicators - (a) Ratio of Revenue Deficit to GFD, (b) Ratio of Capital Outlay to GFD, (c) Ratio of Non-Development Revenue Expenditure to Aggregate Disbursement, (d) Ratio of Non-Development Revenue Expenditure to Revenue Receipt, (e) Ratio of Interest Payment to Revenue Expenditure, (f) Ratio of State's Own Revenue to Revenue Expenditure, (g) Ratio of Gross Transfer from Central Government to Aggregate Disbursement, and (h) Ratio of Debt Servicing Expenditure to Gross Transfers from Central Government. The data related to these indicators for the years 2017-18 (actual), 2018-19 (RE) and 2019-20 (BE) are reported in Table 2.2.

- (a) **Ratio of Revenue Deficit to GFD** : This ratio indicates the extent to which revenue deficit contributes to GFD. In case the ratio is more than 100, indicating surplus, it shows the extent to which surpluses from the revenue account may be used for the creation of capital assets. Bihar has consistently maintained a surplus in the revenue account since 2004-05. The revenue surplus has allowed the State Government to increase its capital outlay much beyond what it borrowed to finance the same. The revenue surplus in Bihar was 104 percent of the GFD in 2017-18, which is only second to 143 percent for Odisha among the states in India. However, it has come down to 50 percent of the GFD for Bihar in 2018-19.
- (b) **Ratio of Capital Outlay to GFD** : This ratio indicates the proportion of GFD caused by capital outlay. The capital outlay in Bihar was 202 percent of the GFD in 2017-18 and 135 percent in 2018-19. It is projected to be 227 percent in the budgeted estimate for 2019-20. Bihar could maintain such a high ratio only because of the high revenue surplus that it generates. Among the major states, only Odisha had a higher ratio of capital outlay to GFD than Bihar in 2017-18.
- (c) **Ratio of Non-Development Revenue Expenditure to Aggregate Disbursements** : This ratio indicates what proportion of the total expenditure is for administrative or general services. A smaller value for this ratio is seen as a better fiscal indicator. In Bihar, this ratio has come down from 26.5 percent in 2017-18 to 23.4 percent in 2018-19. The performance of the state on this indicator is much better than many other states. This ratio for Punjab and Kerala was 48.0 percent and 39.1 percent respectively in 2017-18.

- (d) **Ratio of Non-Development Revenue Expenditure to Revenue Receipts** : This ratio indicates the extent to which the revenue receipts of the State Government was used for expenditure on administrative or general services. In Bihar, the expenditure on administrative or general services consumed 31 percent of the total revenue receipts in 2017-18 and it came down to 28 percent in 2018-19. This ratio for Bihar was much lower than in the states like Punjab (65 percent), Kerala (55 percent), West Bengal (41 percent) in 2017-18. Only four states (Odisha, Madhya Pradesh, Karnataka and Chhattisgarh) had a lower ratio than Bihar in 2017-18.
- (e) **Ratio of Interest Payment to Revenue Expenditure** : This ratio indicates what proportion of the revenue expenditure is spent on interest payment for the past borrowings of the state. The interest payment was 8.8 percent of the total revenue expenditure in Bihar in 2017-18, which was higher than only three other states (Madhya Pradesh, Odisha and Chhattisgarh). It has come down to 7.2 percent in 2018-19 and is further budgeted to be 6.9 percent in 2019-20.
- (f) **Ratios of State's Own Revenue to Revenue Expenditure** : The ratio of the state's own revenue to its total revenue expenditure indicates the self-sufficiency of the State Government to meet its revenue expenditure. The ratio has come down from 32.4 percent in 2017-18 to 25.2 percent in 2018-19 for Bihar, and is projected to be 26.4 percent in 2019-20.
- (g) **Ratio of Gross Transfers from Central Government to Aggregate Disbursements** : This ratio indicates the State Government's dependence on central transfers. The central transfer has accounted for more than 60 percent of Bihar's total expenditure in recent years. The ratio was 62.8 percent for Bihar in 2017-18 and increased to 64.3 percent in 2018-19. The ratio for states like Maharashtra and Haryana was only 19.4 and 13.1 percent respectively in 2017-18.
- (h) **Ratio of Debt Servicing to Gross Transfers from Central Government** : This ratio indicates what proportion of the central transfers is utilised by the State Government for debt servicing. The debt servicing payment was 16.0 percent of Gross Transfers to the State Government in 2017-18 and declined to 14.7 percent in 2018-19. As per the budgeted estimates of 2019-20, it is projected to decline further to 13.0 percent. The ratio was more than 100 percent for states like Punjab, Haryana and Kerala in 2017-18.

Table 2.2 : Major Fiscal Indicators (2017-18 to 2019-20)

State	a. Revenue Deficit : GFD (%)			b. Capital Outlay : GFD (%)		
	2017-18	2018-19 RE	2019-20 BE	2017-18	2018-19 RE	2019-20 BE
Bihar	-104	-50	-134	202	135	227
Jharkhand	-15	-94	-120	100	174	194
West Bengal	34	23	-	67	75	98
Odisha	-143	-76	-35	226	170	130
Uttar Pradesh	-45	-108	-59	141	202	166
Madhya Pradesh	-20	0	-2	136	95	104
Rajasthan	73	79	83	81	67	60
Maharashtra	-9	27	33	112	74	68
Gujarat	-24	-4	-9	123	99	105
Punjab	76	68	59	19	28	116
Haryana	55	41	54	71	78	72
Karnataka	-15	0	-1	99	89	95
Andhra Pradesh	50	35	5	42	61	92
Kerala	63	55	33	33	41	62
Tamil Nadu	54	42	32	51	58	71
Himachal Pradesh	-8	28	32	97	63	62
Chhattisgarh	-50	34	-11	147	65	111

State	c. Non-Dev. Exp: Agg. Disbursements (%)			d. Non-Dev. Exp: Revenue Receipts (%)		
	2017-18	2018-19 RE	2019-20 BE	2017-18	2018-19 RE	2019-20 BE
Bihar	26.5	23.4	25.3	31	28	29
Jharkhand	25.7	24.2	22.9	33	28	26
West Bengal	29.7	28.2	28.4	41	38	37
Odisha	21.3	22.1	22.4	24	26	27
Uttar Pradesh	34.0	31.7	33.0	39	38	40
Madhya Pradesh	19.5	21.0	20.7	24	26	26
Rajasthan	24.5	26.2	25.5	35	38	36
Maharashtra	27.9	24.4	27.1	33	32	35
Gujarat	26.7	25.6	28.0	34	34	37
Punjab	48.0	39.2	32.9	65	54	53
Haryana	30.0	28.5	31.2	43	40	45
Karnataka	19.0	20.9	22.0	24	27	28
Andhra Pradesh	26.8	24.9	21.9	38	35	28
Kerala	39.1	39.8	37.9	55	53	50
Tamil Nadu	30.2	29.8	31.2	42	41	42
Himachal Pradesh	32.6	30.9	32.8	41	42	43
Chhattisgarh	19.5	17.2	19.4	22	22	23

State	e. Interest Payments: Revenue Expenditure (%)			f. State's Own Revenue: Revenue Expenditure (%)		
	2017-18	2018-19 RE	2019-20 BE	2017-18	2018-19 RE	2019-20 BE
Bihar	8.8	7.2	6.9	32.4	25.2	26.4
Jharkhand	9.1	8.8	7.9	43.8	49.8	52.3
West Bengal	19.9	18.2	19.0	43.1	41.1	43.3
Odisha	6.9	6.4	6.0	54.9	45.2	41.8
Uttar Pradesh	10.9	9.6	9.7	48.6	50.2	48.1
Madhya Pradesh	8.5	8.1	8.1	45.3	41.3	44.4
Rajasthan	13.5	12.6	12.1	48.0	47.3	48.6
Maharashtra	13.7	11.3	10.5	78.0	68.3	68.1
Gujarat	16.1	14.6	14.2	75.1	68.6	69.6
Punjab	24.5	19.8	19.6	57.3	52.2	52.3
Haryana	16.3	16.2	17.6	69.5	70.7	65.0
Karnataka	9.8	9.4	10.5	67.9	62.6	60.5
Andhra Pradesh	11.4	11.3	9.6	46.4	49.9	45.9
Kerala	15.1	13.8	13.9	59.4	59.5	66.2
Tamil Nadu	15.5	14.4	15.3	63.9	62.5	65.1
Himachal Pradesh	14.0	12.3	12.6	36.8	27.5	28.7
Chhattisgarh	5.5	4.8	6.0	50.4	38.6	41.4

State	g. Gross Transfers: Aggregate Disbursements (%)			h. Debt Servicing: Gross Transfers (%)		
	2017-18	2018-19 RE	2019-20 BE	2017-18	2018-19 RE	2019-20 BE
Bihar	62.8	64.3	69.1	16.0	14.7	13.0
Jharkhand	45.3	48.4	47.4	24.8	23.0	22.3
West Bengal	40.3	42.8	43.8	73.2	80.1	81.3
Odisha	47.8	51.5	51.2	16.5	16.2	15.7
Uttar Pradesh	47.2	47.6	46.5	29.3	24.5	32.4
Madhya Pradesh	46.2	48.6	46.3	21.6	24.6	28.1
Rajasthan	32.8	32.5	32.7	53.4	56.0	57.0
Maharashtra	19.4	21.8	21.7	90.9	76.6	70.2
Gujarat	21.8	25.0	25.4	94.2	76.0	73.9
Punjab	24.4	30.0	25.8	284.9	189.5	192.6
Haryana	13.1	15.5	17.9	154.0	186.9	174.3
Karnataka	28.0	29.1	31.4	42.6	42.3	39.5
Andhra Pradesh	33.9	33.1	43.2	46.8	52.0	31.2
Kerala	20.6	25.5	23.4	117.2	98.9	99.2
Tamil Nadu	20.5	23.6	23.8	83.7	75.1	79.6
Himachal Pradesh	50.8	52.4	52.8	41.7	39.5	33.3
Chhattisgarh	47.0	46.3	51.5	12.9	13.6	15.9

Source : State Finances : A Study of Budgets of 2019-20, RBI

2.3 Sustainability, Flexibility and Vulnerability of State Finances

Table 2.3 presents data for selected indicators that are used to measure the sustainability, flexibility and vulnerability of the state finances in Bihar. Some of the key indicators for Bihar are analysed in this section.

Table 2.3 : Fiscal and Financial Performance Indicators (2015-16 to 2019-20)

Indicators	2015-16	2016-17	2017-18	2018-19	2019-20 BE
A. Sustainability					
Balance from Current Revenue (Rs crore)	26027	28330	33996	36956	47205
Interest Ratio (%)	8.5	8.6	8.3	8.2	6.7
Buoyancy of State's Own Tax Receipts w.r.t. GSDP	2.7	-0.5	-0.2	4.3	1.3
Buoyancy of State's Own Non-Tax Receipts w.r.t. GSDP	4.8	0.7	3.1	2.8	1.5
Growth in outstanding debt (%)	17.7	19.0	13.0	7.7	10.2
Growth in total revenue receipts (%)	22.6	9.8	11.2	12.2	34.1
Growth in state's own revenue receipts (%)	23.9	-5.4	1.9	25.9	15.1
Growth in GSDP (%)	8.4	13.6	14.8	6.4	11.1
B. Flexibility					
Capital Repayment / Capital Borrowings (%)	25.8	20.1	37.2	46.6	35.5
Total Tax Receipts / GSDP (%)	20.0	19.6	18.2	20.0	21.5
Capital Outlay / Capital Receipts(%)	130.2	126.0	219.1	102.8	147.3
State's Own Tax Receipts / GSDP(%)	6.8	5.6	4.8	5.7	5.9
State's Own Non-Tax Receipts / GSDP(%)	0.6	0.6	0.7	0.8	0.8
Debt Outstanding / GSDP (%)	31.4	32.8	32.3	32.8	32.5
C. Vulnerability					
Revenue Deficit (Rs crore)	-12507	-10819	-14823	-6897	-21517
Fiscal Deficit (Rs crore)	12062	16480	14305	13807	16101
Primary Deficit (Rs crore)	4964	8289	5251	3736	5378
Primary Deficit / Fiscal Deficit (%)	41.2	50.3	36.7	27.1	33.4
Revenue Deficit / Fiscal Deficit (%)	-103.7	-65.7	-103.6	-50.0	-133.6

Source : Finance Accounts, GoB

Sustainability

The following indicators are used to know whether the means of financing development activities in the state are sustainable, i.e., the resources are available to meet the expenditure requirements of the state without adding to its debt burden. These indicators suggest that the means of state finances in Bihar are sustainable.

Interest Ratio : This ratio is calculated as the ratio between (Interest Payment - Interest Receipt) and (Total Revenue – Interest Receipt). The interest ratio is used to measure the ability of the State Government to service fresh debt and their ability to meet revenue expenditure from the revenue receipts. A higher ratio indicates a reduced ability of the State Government to service any fresh debt and meet its revenue expenditure from its revenue receipts. The interest ratio has remained low for Bihar in recent years. This ratio was 8.5 percent in 2015-16 and has since fallen to 8.2 percent in 2018-19. It is projected to be 6.7 percent in the budget estimate for 2019-20. This is within the 10 percent limit suggested by the Fourteenth Finance Commission of India.

Buoyancy of State's Tax and Non-Tax Revenues : The buoyancy of own tax receipts of the State Government shows considerable variation in recent times. It has generally remained buoyant till 2015-16. The own tax revenues of the State Government show a jump in tax buoyancy in 2018-19 to 4.3 percent. It is also expected to be buoyant as per the budgeted estimate for 2019-20. The non-tax revenue has also shown varying levels of buoyancy over recent years. The buoyancy for non-tax revenue was 4.8 in 2015-16, which declined in later years. Such wide variation in the buoyancy for non-tax revenue is primarily due to some of its heads (like royalty from minerals etc.) being highly sensitive to the economic cycles in the state. It is important to note that the share of non-tax revenue in the total revenue receipt of Bihar has remained very low since 2001-02 after the partition of the state. Hence it is the buoyancy of the tax revenue which is more important for understanding the sustainability of the state finances in Bihar.

Flexibility

These indicators are used to measure the flexibility of the State Government in arranging the means of finances, either by increasing the revenue or through borrowing.

Capital Outlay to Capital Receipts ratio : This ratio indicates the extent to which capital receipts are being utilised for capital formation in the state. A ratio of less than 100 percent would not be sustainable in the long run, as that would indicate that capital receipts are being utilized for revenue expenditure. This ratio has remained higher than 100 percent for Bihar in recent years. However, it declined to 102.8 percent in 2018-19 from 219.1 percent in 2017-18. Overall, it indicates that the entire capital receipt of the State Government is presently being used for capital outlay. A part of the revenue surplus was also used for capital expenditure in recent years in Bihar.

State's Own Tax Receipts to GSDP ratio : The ratio of its own tax receipts to GSDP for Bihar was stagnant at around four percent till 2008-09. It improved to 6.8 percent in 2015-16. However,

the ratio again declined to 4.8 percent in 2017-18. It was 5.7 percent in 2018-19 and is estimated to rise marginally to 5.9 percent in the current fiscal. This ratio is much lower for Bihar compared to the other states, highlighting the fact that there is need to further improve the own tax revenue collection. Moreover, the state's own non-tax revenue as a share of GSDP has also remained at 0.8 percent in 2018-19. It is estimated to remain the same in 2019-20.

Outstanding Debt Liability to GSDP Ratio : This ratio can be used as an indicator of the debt sustainability of the State Government. A high ratio leaves little room for the State Government for financial leverage and indicates a lack of flexibility. It can be noted here that the total liability (which also includes the liability pertaining to Public Account) constituted 31.4 percent of the GSDP in 2015-16 and it increased to 32.8 percent in 2018-19 and is budgeted to be at 32.5 percent in 2019-20.

Vulnerability

The vulnerability of the state finances is best indicated by the amount of the deficit, particularly Primary Deficit.

Primary Deficit is the difference between the fiscal deficit of the current year and interest payments in the current year on the previous borrowings by the government. It shows the deficit caused by the current expenditure decisions of the government, without considering the liabilities created in the past, for which interest has to be paid in the current financial year. In 2008-09, Bihar had a primary surplus of Rs 1246 crore, but since then, Bihar could not generate any surplus in its primary account. The exception was in 2010-11 when there was a modest primary surplus of Rs 349 crore. In 2018-19, Bihar's primary deficit reached Rs 3736 crore from Rs 5251 crore in the previous year.

2.4 Deficit Management

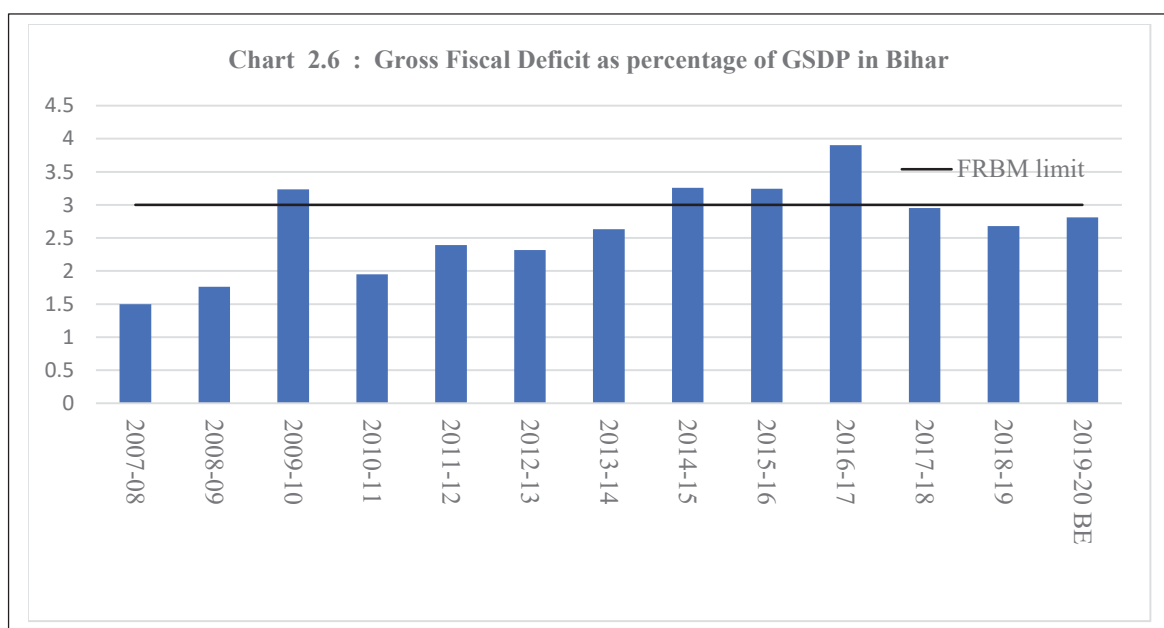
Maintaining deficit within the FRBM threshold during the period of an economic slowdown is a challenge. This is more difficult for poorer states like Bihar, where the fiscal space is limited. Despite the limitations on the revenue front, Bihar has consistently shown fiscal prudence in the last few years, when deficits remained within the stipulated limits. The position of revenue account of major states is shown in Table 2.4. Bihar is one of the states which have consistently maintained revenue surplus in recent years. It had a revenue surplus of Rs 14,823.0 crore in 2017-18, which was higher than the revenue surplus in the other states. Revenue surplus reached Rs 6,897.6 crore in 2018-19.

Table 2.4 : Deficit/Surplus in Revenue Account of States (Rs crore) (2017-18 to 2019-20)

State	Revenue Deficit (+)/ Surplus (-)			State	Revenue Deficit (+)/ Surplus (-)		
	2017-18	2018-19 RE	2019-20 BE		2017-18	2018-19 RE	2019-20 BE
Bihar	-14,823.0	-6897.6	-21,517.0	Gujarat	-5,231.6	-1,378.7	-2,874.0
Jharkhand	-1,805.6	-7,065.0	-8,555.0	Punjab	9,455.3	11,919.1	11,687.3
West Bengal	9,807.0	7,524.1	--	Haryana	10,562.5	8,506.7	12,022.5
Odisha	-13,367.0	-10,554.9	-6,528.1	Karnataka	-4,517.3	-194.1	-258.0
Uttar Pradesh	-12,551.9	-47,247.7	-27,777.4	Andhra Pradesh	16,151.7	11,654.9	1,778.5
Madhya Pradesh	-4,629.3	-137.3	-732.6	Kerala	16,928.2	13,027.0	8,770.3
Rajasthan	18,534.3	24,824.9	27,015.0	Tamil Nadu	21,593.9	19,319.0	14,314.8
Maharashtra	-2,082.5	14,960.0	19,784.4	Chhattisgarh	-3,417.3	6,341.6	-1,151.5

Source : State Governments' Budgets

Chart 2.6 presents the Gross Fiscal Deficit (GFD) for Bihar since 2007-08. The GFD of Bihar has remained within the FRBM threshold of 3 percent of Gross State Domestic Product (GSDP) during the last two financial years 2018-19 and 2017-18, after breaching the limit marginally during 2014-15 to 2016-17. It is budgeted to be 2.81 percent of GSDP in 2019-20. Table 2.5 presents the GFD of major states in India. The GFD in Bihar is lower than many other major states. Bihar maintained a lower GFD of Rs 13,807 crore in 2018-19, compared to Rs 14,305 crore in 2017-18. The lower GFD along with the lower revenue surplus is reflected in a decline of capital expenditure during 2018-19 in Bihar.



Source : Finance Accounts and State Government Budgets

Table 2.5 : Gross Fiscal Deficit (2017-18 to 2019-20)

State	Gross Fiscal Deficit (Rs crore)			State	Gross Fiscal Deficit (Rs crore)		
	2017-18	2018-19 RE	2019-20 BE		2017-18	2018-19 RE	2019-20 BE
Bihar	14,305	13807	16,101	Punjab	12,494	17,650	19,658
Jharkhand	11,931	7,494	7,156	Haryana	19,115	20,533	22,462
West Bengal	28,931	32,498	27,254	Karnataka	31,101	40,167	42,051
Odisha	9,360	13,935	18,877	Andhra Pradesh	32,373	33,619	35,261
Uttar Pradesh	27,810	43,840	46,911	Kerala	26,837	23,686	26,291
Madhya Pradesh	22,745	28,612	32,106	Tamil Nadu	39,840	45,520	44,176
Rajasthan	25,342	31,473	32,678	Himachal Pradesh	3,870	7,786	7,352
Maharashtra	23,961	56,054	60,235	Chhattisgarh	6,811	18,768	10,881
Gujarat	21,366	31,787	31,253				

Source : State Governments' Budgets

The GFD as a percentage of GSDP for major states in India is reported in Table 2.6. The overall fiscal discipline of the states was better in 2017-18, compared to 2016-17. Bihar was successful in keeping its GFD as a percentage of GSDP within the FRBM limit of 3 percent in both 2017-18 and 2018-19. It is also projected to be at 2.8 percent in the budgeted estimate for 2019-20.

Table 2.6 : Gross Fiscal Deficit of states as percentage of GSDP (2016-17 to 2019-20)

State	2016-17	2017-18	2018-19 (RE)	2019-20 (BE)
Andhra Pradesh	4.4	4.0	3.6	3.3
Bihar	3.9	3.0	2.7	2.8
Gujarat	1.4	1.6	2.1	1.8
Haryana	4.7	3.1	2.9	2.9
Jharkhand	4.3	4.3	2.4	2.0
Karnataka	2.4	2.3	2.9	2.5
Kerala	4.2	3.8	3	3.0
Madhya Pradesh	4.3	3.1	3.5	3.5
Maharashtra	1.8	1.0	2.1	2.0
Odisha	2.4	2.1	2.9	3.5
Punjab	12.4	2.6	3.4	3.4
Rajasthan	6.1	3.0	3.4	3.2
Tamil Nadu	4.3	2.7	2.7	2.4
Telangana	5.3	3.5	3.3	2.4
Uttar Pradesh	4.5	2.0	3	3.0
West Bengal	2.9	2.9	2.8	2.0

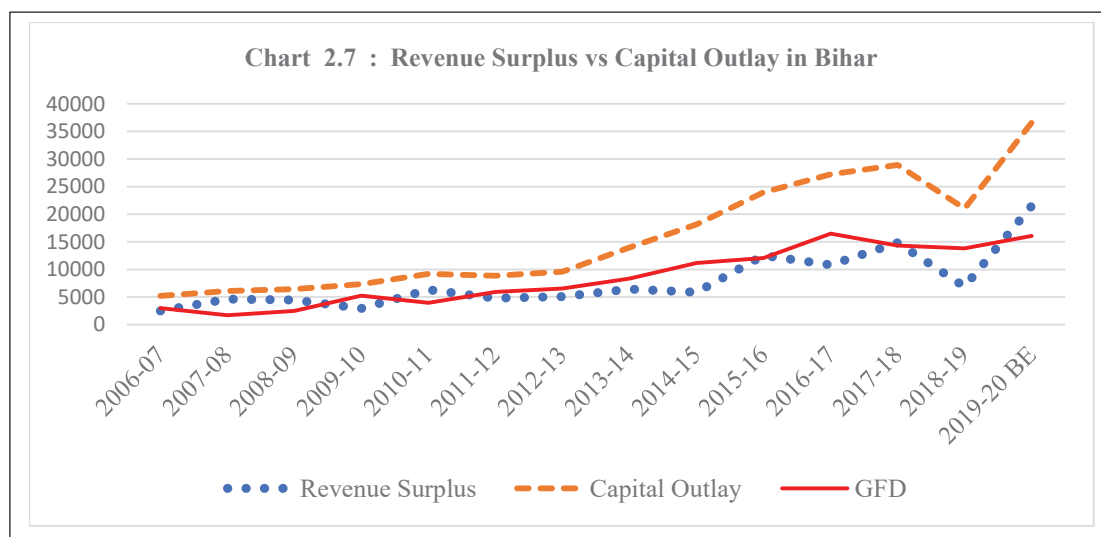
Source : State Governments' Budgets

The decomposition of the GFD for Bihar is shown in Table 2.7. From the table, it is observed that the revenue surplus has been a major source of financing for the capital outlay in the state. As evident from Chart 2.7, these two components of the GFD have moved together over the years. In most of the years when revenue surplus has increased, the capital outlay has also seen an increase. With the falling revenue surplus, borrowings are now a major source of financing of expenditure on social and physical infrastructure in the state. The net lending constitutes only a small part of the GFD in the state. It is also observed that the State Government could maintain the FRBM limit of the GFD in 2018-19 primarily on account of reduction in the capital outlay.

Table 2.7 : Decomposition of Gross Fiscal Deficit of Bihar (2014-15 to 2019-20)

Amount (Rs crore)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Revenue Deficit	-5848	-12507	-10819	-14823	-6897	-21517
Capital Outlay	18150	23966	27208	28907	21058	36593
Net Lending	-1124	603	91	221	-355	1025
GFD	11178	12062	16480	14305	13807	16101
GSDP	342951	371602	422316	484740	515634	572827
GFD-GSDP ratio (%)	3.26	3.25	3.90	2.95	2.68	2.81

Source : State Government Budgets



Source : Finance Accounts and State Government Budgets

Table 2.8 shows the way GFD has been financed in Bihar since 2015-16. The share of net borrowing and the net balance of the Public Account in financing the GFD have varied over the years. The share of net borrowing in financing GFD was 82.8 percent in 2018-19, whereas the net balance of public account contributed only 18.0 percent. Their shares in 2017-18 were 59.5 percent and 40.0 percent respectively. The GFD is projected to be fully financed through net borrowings

in the budgeted estimates for 2019-20. In 2017-18, Rs 68 crore of the cash balance of the State Government with the RBI was withdrawn to finance the GFD.

Table 2.8 : Financing of Gross Fiscal Deficit in Bihar (2015-16 to 2019-20)

Amounts (Rs crore)	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Net Borrowing	14258	17362	8516	11438	17185
Net Public Account	-1983	-893	5721	2479	-1084
Net Decrease in Cash Balance (Opening-Closing Balance)	-214	10	68	-110	0
GFD	12062	16480	14305	13807	16101
Percentage Composition					
Net Borrowing	118.2	105.4	59.5	82.8	106.7
Net Public Account	-16.4	-5.4	40.0	18.0	-6.7
Net Decrease in Cash Balance	-1.8	0.1	0.5	-0.8	0.0

Source : State Government Budgets

2.5 Cash Management and Guarantees

The State Government is required to maintain a minimum daily cash balance of Rs. 1.73 crore with the Reserve Bank of India (RBI), failing which it has to resort to Ordinary Advances or Special Ways and Means Advances. During 2018-19, the State Government was able to maintain its daily minimum balance with the RBI throughout the year. The cash balance of the State Government was Rs 20,837.31 crore on March 31, 2019, compared to Rs 22,081 crore on March 31, 2018. Out of this, Rs 14,791 crore was invested in the Cash Balance Investment Account and Rs 234.65 crore was lying as cash with departmental officers, and Rs 758.52 crore as permanent advances for contingent expenditure with various departments at the end of 2018-19. Further, a sum of Rs 4895.22 crore was invested in earmarked funds like the Sinking Fund, leaving a net credit cash balance of Rs 157.12 crore with the RBI as on March 31, 2019.

The outstanding guarantees of the State Government at the end of 2018-19 was Rs 5501.86 crore, compared to Rs 5346.42 crore at the end of 2017-18. Out of the total outstanding guarantees, Rs 3717 crore were against the loans to the Power Sector, Rs 127.47 crore against the Bihar State Financial Corporation, and Rs. 495.66 crore against Credit Cooperative Societies and Housing Cooperatives. In 2018-19, a sum of Rs. 2.64 crore was received as guarantee commission or fees.

2.6 Debt Management

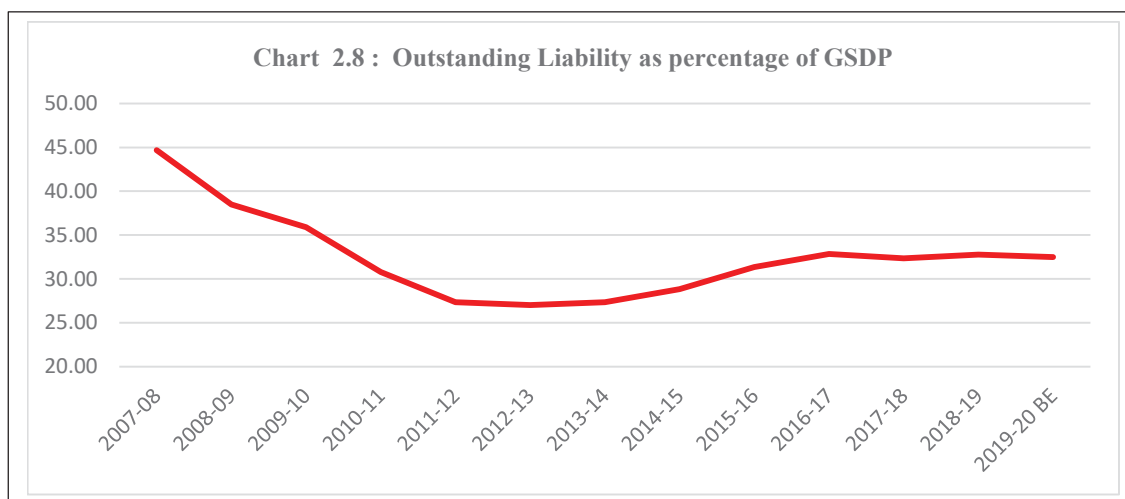
The outstanding debt liability (excluding guarantees) of the State Government and their components are shown in Table 2.9 for the period 2014-15 to 2019-20. The outstanding liability of the state was Rs 1,68,921 crore at the end of 2018-19, which is 7.7 percent higher than the total outstanding liability for the previous year. The increase in the outstanding liability in 2018-19 (7.7 percent) has come down from the same in 2015-16 (17.7 percent) and in 2016-17 (19.0 percent).

The public debt accounted for 74.7 percent of the total outstanding liability of the state at the end of 2018-19, and the remaining part of the outstanding liability comprises small savings, Provident Fund, Reserve Funds, and Deposits and Advances. The share of internal debt has remained around 90 percent of the total public debt since the financial year 2015-16. It was only 76.4 percent in 2007-08 and has increased over the years since then. The share of loan from the Central Government in the public debt has gradually declined over the years, finally stabilising at around nine percent since 2015-16. Table 2.9 also shows that there is an increase in the outstanding liability as a percentage of GSDP from 28.8 percent in 2014-15 to 32.5 percent in 2018-19. The total outstanding liability as a percentage of GSDP has stabilised at around 32-33 percent in the last three years. The outstanding liability was as high as 45 percent of GSDP in 2007-08 and had come down to 27 percent in 2011-12 (See Chart 2.8).

Table 2.9 : Outstanding Liabilities (2014-15 to 2019-20)
(Rs. crore)

Heads	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Public Debt						
Internal Debt	65848	79990	96595	104525	114360	129943
Central Loans	8722	8838	9596	10182	11785	13387
Total	74570	88829	106191	114707	126145	143330
Public Debt as % of GSDP	21.7	23.9	25.1	23.7	24.5	25.0
Other Liabilities						
Small Savings, PF etc.	8865	8792	8891	8811	9089	8989
Reserve Funds	1836	1435	723	26	26	26
Deposits and Advances	13589	17523	22917	33233	33661	33761
Total	24290	27749	32531	42070	42776	42776
Other Liabilities as % of GSDP	7.1	7.5	7.7	8.7	8.3	7.5
Total (Public Debt + Other Liabilities)	98860	116578	138722	156777	168921	186106
Outstanding Liability as % of GSDP	28.9	31.4	32.8	32.3	32.8	32.5

Source : Finance Accounts and State Government Budgets



Source : Finance Accounts and State Government Budgets

The liability of the State Government from the Public Account was Rs 42,776 crore at the end of both 2018-19 and 2019-20. Its share in total outstanding liability of the State Government was 25.3 percent in 2018-19 and is budgeted to come down to 23.0 percent in 2019-20. This decline will be mostly on account of increase in outstanding liability through the internal debt.

Table 2.10 : Composition of Outstanding Liabilities in the Consolidated Fund (2017-18 and 2018-19)

Nature of Borrowings	Fresh Borrowings		Outstanding Balance		Percentage Increase in 2019 from 2018	Percentage Composition
	2017-18 (Rs crore)	2018-19 (Rs crore)	31.03.2018 (Rs crore)	31.03.2019 (Rs crore)		
A. Internal Debt	11,771	16,134	1,04,525	1,14,360	9.4	90.7
Market Loans	10,000	14,300	73,897	84,800	14.8	74.2
WMA from the RBI	0	0	0	0	0.0	
Bonds	0	0	2351	2,351	0.0	2.1
Loans from Financial Institutions	1,771	1,834	6820	7,571	11.0	6.6
Special Securities Issued to NSSF	0	0	21450	19,631	-8.5	17.2
Others	0	0	7	7.45	0.0	0.0
B. Loans and Advances from Central Government	1,398	2534	10182	11785	15.7	9.3
Non plan loans	0	0	1	1	0.0	0.0
Loans for Central Plan Schemes	0	0	1	1	0.0	0.0
Loans for State Plan Schemes	0	0	191	191	0.2	0.2
Loans for Centrally Sponsored Plan Schemes	7.19	0	1	1	0.0	0.0
Other Loans	1391.46	2,533.78	9989	11592	16.0	7.9
Total (A+B)	13,169	18,668	1,14,707	1,26,145	10.0	100.0

Source : Finance Accounts, GoB

The composition of the outstanding liability of the State Government during the last two financial years is shown in Table 2.10. The total borrowings by the State Government increased by 41.8 percent from Rs. 13,169 crore in 2017-18 to Rs 18,668 crore in 2018-19. The outstanding balance in the consolidated fund increased by Rs 11,438 crore to Rs. 1,26,145 crore at the end of March 2019. This implied an increase of 10.0 percent. The internal debt increased by 9.4 percent, whereas loans and advances from the Central Government increased by 15.7 percent in 2018-19 over the previous year.

The borrowings from the market increased by 14.8 percent to Rs 84,800 crore at the end of 2018-19 and its share in the total outstanding liability increased to 74.2 percent from 64.4 percent during the previous year. The State Government has not made any fresh borrowings from the National Small Saving Fund (NSSF) in the last three years. The outstanding liability due to borrowings from the NSSF came down from Rs. 21,450 crore at the end of 2017-18 to Rs 19,630.65 crore at the end of 2018-19.

Table 2.11 : Public Debt Repayment Liabilities (2014-15 to 2019-20)

Amounts	Rs. crore					
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Discharge of internal debt	2975	3423	3460	3841	6299	6153
Repayment of loans to Centre	634	702	754	813	930	1083
Discharge of other liabilities	25463	34384	46487	36704	54432	34140
Total Repayment	29072	38508	50701	41357	61661	41376
Total Interest Payment	6129	7098	8191	9054	10071	10723
Total Debt Service Burden	35200	45606	58892	50411	71733	52099

Note : Liabilities include receipts and payments of Small Saving and Provident Fund, Reserve Funds and Deposits under Public Accounts of the Government of Bihar.

Source : Finance Accounts, GoB

The repayment liabilities of the State Government for its liabilities in the consolidated fund is shown in Table 2.11. The total debt service burden on the state increased from Rs. 50,411 crore in 2017-18 to Rs 71,733 crore in 2018-19. The repayment towards principle was Rs. 61,661 crore, whereas Rs 10,071 crore was the interest payment in 2018-19. The repayment of principle during 2018-19 was 49 percent higher than the previous financial year. The payment towards the discharge of accumulated internal debt increased by 64 percent in 2018-19.

Table 2.12 shows the detail of the net public debt received by the State Government that could be used for its expenditure. Net debt received as a percentage of total borrowing was only 8.1 percent during 2017-18; however, it has increased to 24.5 percent of total borrowings in 2018-19. Although

the repayment of principle increased by 55.4 percent in 2018-19, the increase in net debt receipt for the State Government is on account of increased borrowings and a huge increase in the recoveries of loans and advances. The recoveries of loans and advances increased from Rs 22 crore in 2017-18 to Rs 1825 crore in 2018-19. The budgeted estimate of net public debt for 2019-20 is Rs 9172 crore, which is 37.6 percent of total borrowings.

Table 2.12 : Net Public Debt Received (2014-15 to 2019-20)

(Rs. crore)

Amounts	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Gross Central Loans Received	718	818	1512	1399	2534	2685
Internal Debt Received	13199	17565	20065	11771	16134	21736
Total Public Debt Received	13918	18383	21577	13169	18668	24421
Recoveries of Loans and Advances	1493	19	23	22	1825	416
Interest payments	6129	7098	8191	9054	10071	10723
Interest Received	345	584	940	1577	1372	2294
Repayment of Debt	3609	4125	4215	4654	7230	7236
Net Public Debt Received	6018	7763	10135	1061	4565	9172
Net Debt Received as percentage of total borrowing	43.2	42.2	47.0	8.1	24.5	37.6

Source : Finance Accounts, GoB and State Government Budget

2.7 Resource Management

The revenue receipts of the State Government come from both tax and non-tax sources. The tax revenue consists of its own tax revenues and its share in the divisible pool of taxes and duties of the Central Government. Similarly, the non-tax revenues consist of the state government's own non-tax revenue as well as central grants for plan and non-plan purposes. With the introduction of the Goods and Services Tax (GST) in July 2017, many of the central and state taxes have been replaced by GST, which has three components — SGST, CGST and IGST.

The GST has subsumed the Sales Tax/ VAT on all items (except for petroleum, petroleum products and alcohol), Taxes on Goods and Passengers, State Excise (except for alcohol), Entertainment Tax, Luxury Tax, Tax on Lottery, and Tax on Advertisement. In Bihar, the State Government does not receive any revenue from sales of alcohol, since prohibition was implemented in the state. All these taxes were hitherto being collected by the Commercial Taxes Department, which now collects the GST in place of these taxes.

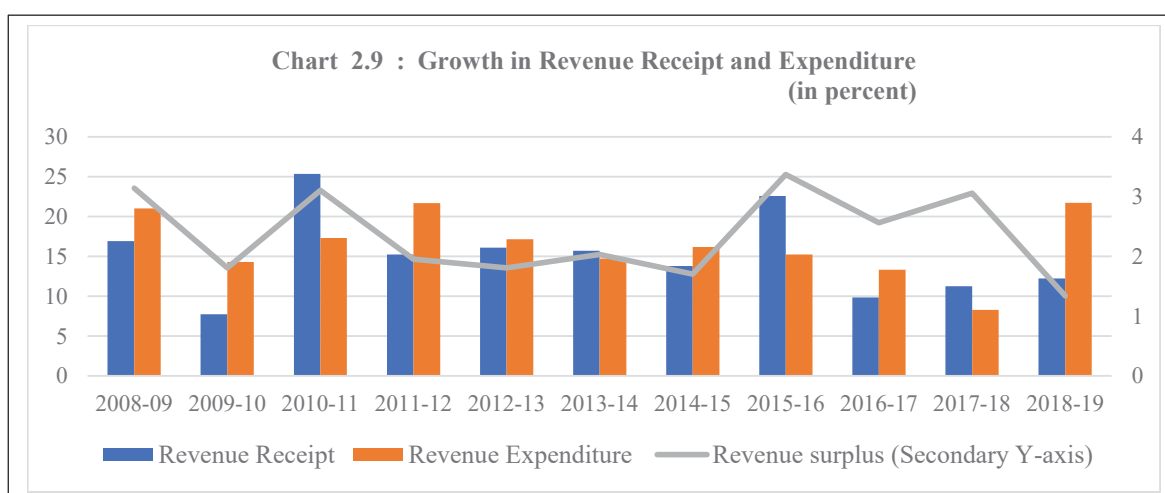
Both receipt and expenditure in the revenue account have continuously increased over the years. The growth rate of revenue receipt and revenue expenditure since 2008-09 is shown in Chart 2.9. It is observed that except for four years, the revenue expenditure has grown at a higher rate than the revenue receipt in the last eleven years. The summary of revenue receipt for Bihar during 2014-15 to 2018-19 and the budgeted estimate for 2019-20 is presented in Table 2.13. The revenue receipt increased by 12.2 percent in 2018-19, whereas an increase in the expenditure was 21.7 percent over the previous year. The higher growth rate in the expenditure than receipt in the revenue account led to a lower revenue surplus than the previous year in 2018-19. The revenue receipt is budgeted to grow at a higher rate than the revenue expenditure in the budgeted estimates for 2019-20.

Table 2.13 : Revenue Account : Receipts (2014-15 to 2019-20)

(Rs. crore)

Amounts	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Revenue Receipt	78418	96123	105585	117447	131793	176748
Revenue Expenditure	72570	83616	94765	102624	124897	155231
Revenue Surplus	-5848	-12507	-10819	-14823	-6897	-21517
State's own tax + non-tax revenue	22308	27635	26145	26643	33539	38606
State's own revenue as % of total revenue	28.4	28.7	24.8	22.7	25.4	21.8
State's share of Central tax as % of total revenue	47.1	50.9	55.8	55.4	55.8	50.4
Central Grants as % of its total revenue	24.4	20.4	19.5	21.9	18.7	27.7
State's own revenue as % of revenue expenditure	28.4	28.7	24.8	22.7	25.4	21.8

Source : Finance Accounts, GoB and State Government Budget



Source : Finance Accounts, GoB and State Government Budget

The share of the state's own revenue, both tax and non-tax, increased in 2018-19, after observing a decline in the previous two financial years. The state's own revenue was 25.4 percent of the total revenue in 2018-19. In 2015-16, this ratio was 28.7 percent, but it has steadily declined during the last three years. Therefore, the State Government depends heavily on its share in central taxes and grant from the Central Government along with the borrowings to finance its expenditure. The revenue receipt from the state's share in the central taxes was 55.8 percent in 2018-19. It has remained almost the same during last three years. The share of central grants in the revenue receipt has declined to 18.7 percent in 2018-19 from 24.4 percent in 2014-15.

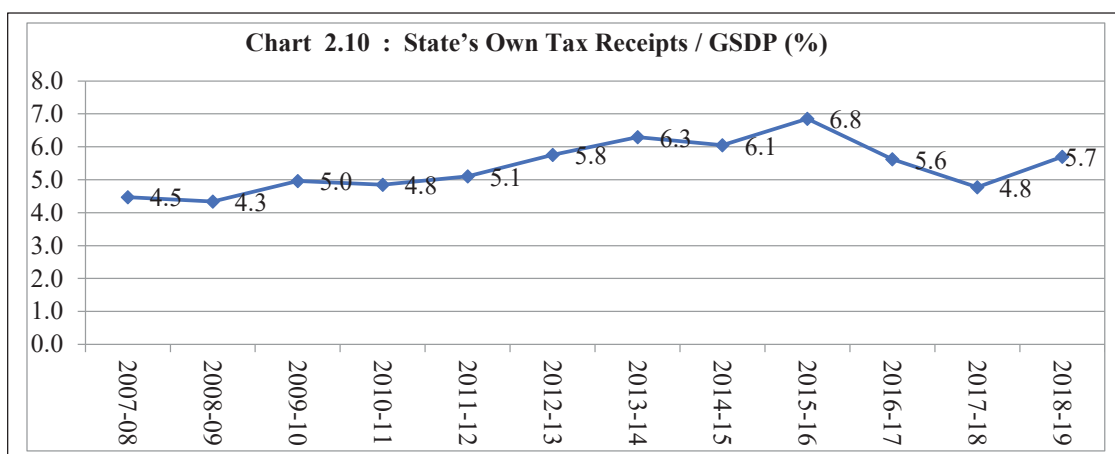
The pattern of transfer of resources from the Central Government to Bihar is shown in Table 2.14. The gross transfer of resources includes the State Government's share in central taxes, grants-in-aid from the Central Government, as well as loans from the Central Government. The net transfer of resources from centre to the state increased from Rs 56,194 crore in 2014-15 to Rs 99,858 crore in 2018-19 and is budgeted to be Rs 1,39,743 crore in 2019-20. The Grant-in-Aid from the Central Government was Rs 24,652 crore in 2018-19, which is Rs 1068 crore lower than in the previous year. The resource transfer as a loan from the Central Government to Bihar increased from Rs 85 crore in 2014-15 to Rs 1603 crore in 2018-19.

The net transfer from the Central Government was 59.3 percent of the total expenditure of the state in 2014-15, and it has increased to 64.6 percent in 2018-19. The own resources of the State Government were able to finance 21.7 percent of the total expenditure in 2018-19.

Table 2.14 : Transfer of Resources from Central Government (2014-15 to 2019-20)

Amounts	(Rs Crore)					
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Aggregate Disbursements	94698	112328	126302	136427	154655	200501
Share in Central Tax	36963	48923	58881	65083	73603	89122
Grants-in-Aid from Centre	19146	19566	20559	25720	24652	49019
Gross Loans from Centre	718	818	1512	1399	2534	2685
Gross transfer of Resources	56828	69306	80951	92202	100789	140826
Net Loans from Centre	85	116	758	586	1603	1602
Net Transfer of Resources	56194	68604	80197	91390	99858	139743
Own Tax + Non-tax Revenue	22308	27635	26145	26643	33539	38606
Net transfer to total expenditure ratio (percent)	59.3	61.1	63.5	67.0	64.6	69.7
Own resources to total expenditure ratio (percent)	23.6	24.6	20.7	19.5	21.7	19.2

Source : Finance Accounts, GoB and State Government Budget



Source : Finance Accounts, GoB

Table 2.15 shows the state's own tax-GSDP ratio of the different states for 2017-18. Own tax revenue as a percentage of GSDP ratio for Bihar was the lowest among all the states in 2017-18, whereas the total revenue as a share of GSDP was the highest among the states in the same year. However, it should be noted that the high revenue-GSDP ratio for the state was partly due to lower GSDP of the state compared to its size of the population. Thus, the per capita fiscal space for the state remains much lower compared to the other states. The own tax receipt as a percentage of GSDP for Bihar increased from 4.5 percent in 2007-08 to 4.8 percent in 2017-18. However, it remains lower than the ratio of 6.8 percent in 2015-16 (Chart 2.10).

Table 2.15 : Tax : GSDP Ratio of States (2017-18)

State	Revenue Receipts (Rs. crore)	State's Own Tax (Rs. crore)	GSDP (Rs. crore)	State's Own Tax: Revenue Receipts	State's Own Tax: GSDP	Total Revenue: GSDP
Bihar	1,17,447	29708	4,84,740	25.3	4.8	24.2
Jharkhand	52,756	14488	2,76,243	27.5	5.2	19.1
West Bengal	1,31,270	57701	9,99,585	44.0	5.8	13.1
Odisha	85,204	31070	4,36,374	36.5	7.1	19.5
Uttar Pradesh	2,78,776	109605	13,76,324	39.3	8.0	20.3
Madhya Pradesh	1,34,875	49943	7,28,242	37.0	6.9	18.5
Rajasthan	1,27,307	54342	8,35,558	42.7	6.5	15.2
Maharashtra	2,43,654	171686	24,11,600	70.5	7.1	10.1
Gujarat	1,23,291	73646	13,14,680	59.7	5.6	9.4
Punjab	53,010	31496	4,79,141	59.4	6.6	11.1
Haryana	62,695	41836	6,26,054	66.7	6.7	10.0
Karnataka	1,47,000	90335	13,50,257	61.5	6.7	10.9
Andhra Pradesh	1,05,062	52414	8,09,547	49.9	6.5	13.0
Kerala	83,020	48160	7,00,532	58.0	6.9	11.9
Tamil Nadu	1,46,280	96472	14,61,841	66.0	6.6	10.0
Himachal Pradesh	27,367	7593	1,40,613	27.7	5.4	19.5
Chhattisgarh	59,647	21989	2,84,194	36.9	7.7	21.0

Source : State Governments' Budgets

Table 2.16 shows the major components of the revenue receipts in Bihar from 2014-15 to 2018-19 and the budgeted estimate for 2019-20. It is observed that, during these years, around 70-80 percent of the total revenue receipts of the State Government came from the Central Government by way of state's share of the divisible pool of central taxes and grants-in-aid. In 2013-14, this constituted 69 percent of the total revenue of the State Government and has increased to 75 percent in 2018-19. The own resources of the State Government contributed 25.4 percent of the total revenue in 2018-19, which is slightly higher than 22.7 percent in the previous year. This increase came from increases in both tax and non-tax revenue. The share of own revenue receipts of the State Government from tax and non-tax revenue in the total receipt was 22.3 percent and 3.13 percent respectively in 2018-19.

Table 2.16 : Revenue Receipts (2014-15 to 2019-20)

Sources of Revenue	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
I. State's Own Revenue	22308	27635	26145	26643	33539	38606
(a) Tax Revenue	20750	25449	23742	23136	29408	33800
(b) Non-Tax Revenue	1558	2186	2403	3507	4131	4806
II. Receipts from Centre	56109	68488	79440	90804	98255	138141
(a) Share of Divisible Taxes	36963	48923	58881	65083	73603	89122
(b) Grants-in-aid	19146	19566	20559	25720	24652	49019
III. Total Revenue Receipts	78418	96123	105585	117447	131793	176748
State's Own Revenue as % of Total Receipts	28.4	28.7	24.8	22.7	25.4	21.8

Source : Finance Accounts, GoB and State Government Budget

The SGST collected in the state during 2018-19 was Rs 15,288 crore and it is budgeted to be Rs 17,812 crore during 2019-20 (Table 2.17). As mentioned before, 2018-19 was the first full financial year when SGST replaced many of the taxes levied by the State Government after the implementation of GST in July 2017. The SGST collection in the state during 2018-19 was 45.6 percent of the state's own revenue, and 11.6 percent of the total revenue receipt.

Apart from SGST, tax revenue from sales of petroleum and petroleum products, stamp and registration fees, and the taxes collected from vehicles were the major sources of the state's own tax revenue. The revenue collected from stamp and registration fees increased to Rs 4189 crore in 2018-19 from Rs 3726 crore in 2017-18. There is also a significant jump in the revenue from taxes on vehicles, which has increased from Rs 1600 crore in 2017-18 to Rs 2086 crore in 2018-19. It is budgeted to be Rs 2500 crore in 2019-20. The receipt from land revenue has come down from Rs 799 crore in 2017-18 to Rs 477 crore in 2018-19. However, the budgeted amount for 2019-20 is substantially higher at Rs. 1100 crore.

Table 2.17 : Tax Revenues under Different Heads (2014-15 to 2019-20)

Source of Revenue (Rs crore)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
SGST	-	-	-	6747	15288	17812
Taxes on Sales, Trade, etc.	8607	10603	11874	8298	6584	7150
Taxes on Goods and Passengers	4451	6087	6246	1645	399	50
State Excise	3217	3142	30	-3	-10	0
Stamp and Registration Fees	2699	3409	2982	3726	4189	4700
Taxes on Vehicles	964	1081	1257	1600	2086	2500
Land Revenue	277	695	971	779	477	1100
Taxes & Duties on Electricity	375	298	224	239	269	350
Other Taxes/ Duties on Comm. and Services	105	69	81	20	1	0
Other taxes on Income & Expenditure	55	65	79	87	125	138
Others	160	134	160	107	126	138
Total	20750	25449	23742	23136	29408	33800

Source : Finance Accounts, GoB and State Government Budget

Table 2.18 presents the share of direct and indirect taxes in own tax revenue of the State Government. The direct taxes are usually structured to be progressive in nature. However, indirect taxes can also be designed to be a progressive tax. The share of direct taxes in own tax revenue of Bihar was only 21.1 percent in 2014-15, but it has increased to 24.3 percent in 2018-19. Correspondingly, the share of indirect taxes in 2018-19 was 75.7 percent.

Table 2.18 : Share of Direct and Indirect Taxes (2014-15 to 2019-20)

Source	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Share of Indirect Taxes in State's Own Tax Revenue (%)	78.9	78.2	76.8	72.2	75.7	74.0
Share of Direct Taxes in State's Own Tax Revenue (%)	21.1	21.8	23.2	27.8	24.3	26.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source : Finance Accounts, GoB and State Government Budget and Calculation

The revenue from major sources of non-tax revenue in the state is presented in Table 2.19. The revenue from interest receipts and non-ferrous mining and metallurgical industries are major contributors in the own non-tax revenue of the state. The revenue from interest receipt was Rs 1372 crore in 2018-19, which is lower than Rs 1577 crore in 2017-18. It had continuously increased during 2012-13 to 2017-18 from Rs 167 crore to Rs 1577 crore. It is projected to be Rs 2294 crore in the budgeted estimate for 2019-20.

The revenue from the non-ferrous mining and metallurgical industries has increased by 44.1 percent to Rs 1,561 crore in 2018-19 over the previous year. However, over the years, the growth rate of the revenue from non-ferrous mining and metallurgical industries has come down from 54.6 percent in 2014-15 to 44.1 percent in 2018-19 (Table 2.20). The minerals available in the state are all minor minerals that include brick earth, stones, limestone, sand, etc., used mainly in the real estate sector. Hence, the growth in revenue from these minerals is dependent on the increase in the related economic activity.

Table 2.19 : Major Non-Tax Revenues (2014-15 to 2019-20)

(Rs. crore)

Source of Revenue	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Non-Ferrous Mining and Metallurgical Industries	880	971	998	1083	1561	1600
Interest Receipts	345	584	940	1577	1372	2294
Miscellaneous General Services	2	1	6	3	4	1
Other Administrative Services	22	73	100	26	47	23
Police	30	66	42	86	30	53
Major Irrigation	1	15	14	22	37	50
Education, Sports, Arts and Culture	11	41	17	21	19	22
Roads and Bridges	55	42	42	67	118	75
Medical and Public Health	30	40	40	55	67	55
Other Rural Development Programmes	29	24	36	49	62	15
Social Security and Welfare	0	0	0	0	0	0
Others	154	328	168	518	814	620
Total	1558	2186	2403	3507	4131	4806

Source : Finance Accounts, GoB and State Government Budget

Table 2.20 : Growth Rates of Non-Tax Revenues (2014-15 to 2019-20)

(Percent)

Source of Revenue	Yearly Growth Rates						CAGR (2014-19)
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE	
Non-Ferrous Mining and Metallurgical Industries	54.6	10.4	2.7	8.5	44.1	2.5	13.7
Interest Receipts	27.9	69.3	61.0	67.8	-13.0	67.2	43.2
Miscellaneous General Services	611.0	-48.3	512.0	-45.2	8.2	-82.8	-6.7
Other Administrative Services	113.9	233.5	37.6	-74.1	81.1	-51.7	-6.8
Other non-Tax Revenues	-55.5	79.9	-35.5	127.7	40.4	-22.5	26.6
Total	0.9	40.3	9.9	45.9	17.8	16.4	25.4

Source : Finance Accounts, GoB and State Government Budget

The own tax revenue as a percentage of GSDP was 5.7 percent in 2018-19 in Bihar, which is higher than the 4.8 percent in the previous year (Table 2.21). The own non-tax revenue was only 0.8 percent of the GSDP in 2018-19. Buoyancies for total revenue and own tax revenue to GSDP has been volatile in recent years, indicating no trend. In 2018-19, both these buoyancies were, however, high — 1.9 for total revenue and 4.3 for own tax revenue. As regards individual tax heads, the buoyancies are again volatile, as evident from Table 2.22.

The buoyancy ratio for individual tax heads and non-tax revenue from own sources is shown in Table 2.22. These buoyancy ratios have remained volatile. This ratio for taxes on vehicles and tax revenue from non-ferrous minerals has always remained positive in recent years. This highlights their contribution to revenue collection as the GSDP of the state grows. At the same time, there remains a challenge to improve these buoyancy ratios to GSDP.

Table 2.21 : Tax and Non-tax Revenue as Percentage of GSDP (2014-15 to 2019-20)

Indicators	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Own Tax Revenue as % of GSDP	6.1	6.8	5.6	4.8	5.7	5.9
Own Non-Tax Revenue as % of GSDP	0.5	0.6	0.6	0.7	0.8	0.8
Total Revenue as % of GSDP	22.9	25.9	25.0	24.2	25.6	30.9
Buoyancy of Total Revenue w.r.t. GSDP (Ratio)	1.7	2.7	0.7	0.8	1.9	3.1
Buoyancy of State's Own Taxes w.r.t. GSDP (Ratio)	0.5	2.7	-0.5	-0.2	4.3	1.3

Source : Finance Accounts, GoB and State Government Budget

Table 2.22 : Buoyancy of Important Tax and Non-Tax Revenue Sources (2014-15 to 2019-20)

Source of Revenue	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Taxes on Sales, Trade (SGST)	0.2	2.8	0.9	-2.0	-3.2	0.8
Stamp Duty and Registration Fees	-0.1	3.1	-0.9	1.7	1.9	1.1
Taxes on Vehicles	1.8	1.5	1.2	1.8	4.8	1.8
Land Revenue	4.6	18.1	2.9	-1.3	-6.1	11.8
Taxes & Duties on Electricity	20.3	-2.5	-1.8	0.5	2.0	2.7
Total Tax Revenue	0.7	3.5	0.8	0.5	2.6	1.7
Non Ferrous Minerals	6.7	1.2	0.2	0.6	6.9	0.2
Interest Receipts	3.4	8.3	4.5	4.6	-2.0	6.1
Total Non Tax Revenue	0.1	4.8	0.7	3.1	2.8	1.5

Source : Finance Accounts, GoB and State Government Budget

The taxes collected by the Commercial Tax Department of Bihar is shown in Table 2.23. There was a structural shift in the way the department collects taxes after implementation of the GST when a set of taxes were subsumed under the GST. The share of commercial taxes in total revenue is shown in Table 2.24. This share has remained around 17-18 percent during 2014-15 to 2018-19.

Table 2.23 : Act-wise Commercial Tax Collection (2014-15 to 2018-19)

(Rs. crore)

Year	VAT	CST	ENT.	ED	ADV	HLT	ET	PT	Total
2014-15	8796	71	46	373	1	11	4406	55	13758
2015-16	10726	60	55	297	1	11	6162	66	17378
2016-17	11908	70	70	226	1	11	6389	77	18751
2017-18 A	1893	13	13	29	0	1	877	4	2832
2017-18 B	6438	43	4	208	0	2	879	84	7658
2018-19	6802	26	14	280	0	0	472	127	7722

Note : 1) 2017-18 A refers to April-June, 2017. Next, 2017-18 B refers to July, 2017 to March, 2018.

2.) VAT: Value Added Tax, ENT: Entertainment Tax, ED: Electricity Duty, ADV: Advertisement Tax, HLT: Taxation on Luxuries in Hotel, ET: Tax on Entry of Goods into Local Area for Consumption, Use or Sale therein, PT: Tax on Professions, Trades, Calling and Employment Act

Source : Department of Commercial Tax

Table 2.24 : Share of Commercial Taxes in Total Revenue (2014-15 to 2018-19)

Amounts	2014-15	2015-16	2016-17	2017-18	2018-19
Total Revenue of State (Rs. crore)	78418	96123	105585	117447	131793
State's Own Tax Revenues (Rs. crore)	20750	25449	23742	23136	29408
Revenue from Commercial Taxes (Rs. crore)	13758	17378	18751	20277	23013
Share of Commercial Taxes in Total Revenue (%)	17.5	18.1	17.8	17.3	17.5
Share of Commercial Taxes in State's Own Taxes (%)	66.3	68.3	79.0	87.6	78.3

Source : Department of Commercial Taxes, GoB

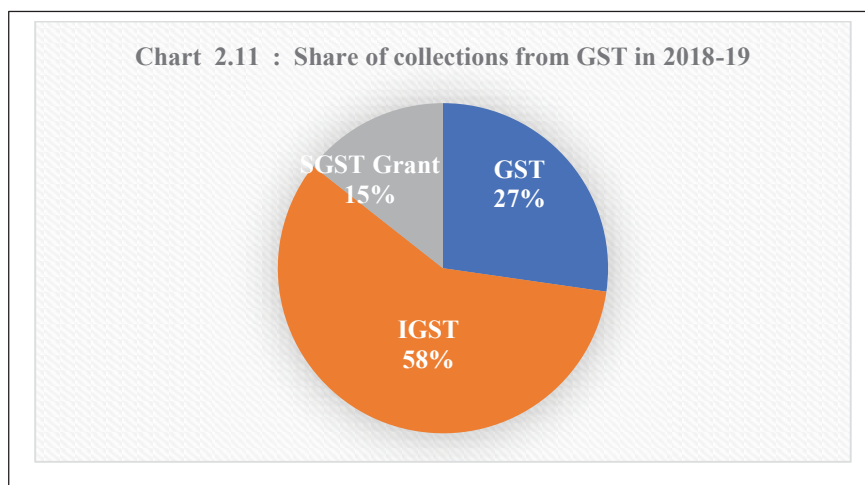
The collection against SGST and IGST by the State Government is reported in Table 2.25. The SGST and IGST revenue collected by the state was Rs 17,861 crore in 2018-19. The share of SGST, IGST and the SGST grant in the total collection are shown in Chart 2.11. The revenue from IGST was about 58 percent of the total revenue collected from GST for the state. The monthly collection of the GST for the state from April 2018 to August 2019 is presented in Table 2.26.

Table 2:25 : Collection against State GST and Integrated GST (2017-18 and 2018-19)

(Rs crore)

Year	SGST	IGST	IGST Settlement (Advance/ Ad-hoc)	SGST Grant	Total
2017-18 (July 17 to March 18)	2362.90	3831.95	552.00	3041.00	9787.85
2018-19	4871.60	8368.06	2051.16	2571.00	17861.82

Source : Department of Commercial Taxes, GoB



Source : Department of Commercial Taxes, GoB

Table 2.26 : Collection against SGST and IGST (April, 2018 to August, 2019)

(Rs crore)

	SGST	IGST	IGST Settlement (Advance/ Ad-hoc)	SGST Grant	Total
Apr-18	422.07	598.09			1020.16
May-18	336.25	618.25		99.00	1053.50
Jun-18	362.69	719.08	789.00		1870.77
Jul-18	390.93	737.12		325.00	1453.05
Aug-18	360.87	704.91			1065.78
Sep-18	369.86	665.89	189.00	633.00	1857.75
Oct-18	394.50	771.15	473.45		1639.10
Nov-18	400.85	709.59		498.00	1608.44
Dec-18	388.06	706.19	284.07		1378.32
Jan-19	452.87	740.33		508.00	1701.20
Feb-19	437.40	702.68			1140.08
Mar-19	555.25	694.78	315.64	508.00	2073.67
Apr-19	563.01	797.21	189.38		1549.60
May-19	464.64	721.15		326.00	1511.79
Jun-19	485.99	874.21			1360.20
July-19	530.67	904.8	236.47	568.00	2239.94
Aug-19	454.67	719.35		739.00	1913.02

Source : Department of Commercial Taxes, GoB

Table 2.27 presents revenue from Stamp Duty and Registration Fees collected during 2014-15 to 2018-19. The revenue collected from this source has increased from Rs 2855 crore to Rs 4441 crore during 2014-15 to 2018-19. Out of the total revenue of Rs 4441 crore in 2018-19, Rs 3425 crore was from Stamp Duty, whereas Rs 1016 crore was from Registration Fees.

Table 2.27 : Revenue from Stamp Duty and Registration Fees (2014-15 to 2018-19)

(Rs crore)

Source of Revenue	2014-15	2015-16	2016-17	2017-18	2018-19
From Printed Non-judicial stamps	330	391	339	410	417
From Non-judicial stamp duty deposited through Bank challan	1750	2024	2064	2436	2896
Non-Judicial adhesive stamps	30	32	26	34	38
Non-Judicial special adhesive stamp – through Franking machines	18	20	17	20	25
Revenue Stamps	2	2	2	2	3
Judicial Stamps	37	40	37	43	46
Sub-Total	2167	2508	2485	2945	3425
Fees on registration of instruments	646	741	730	832	965
Landlord's Registration fee	31	34	31	36	39
Landlord's Processing fee	4	5	4	4	5
Fee from searches of records & Non-Encumbrances	5	5	5	5	5
Fee from certified copies	2	2	2	2	2
Sub-Total	688	787	772	879	1016
Total	2855	3295	3257	3824	4441

Source : Department of Prohibition, Excise and Registration, GoB

The district-wise revenue collection from Stamp Duty and Registration Fees in 2018-19, along with target and its achievement, is reported in Table 2.28. Bhagalpur was the best performing district in terms of achieving the target of the revenue, with 99.8 percent of the target being achieved. Jehanabad with 77.6 percent achievement was at the bottom. Patna and Muzaffarpur were the top two districts in contributing revenue from this source with the collection of Rs 815.78 crore and Rs. 227.62 crore respectively. Arwal and Sheohar could contribute only Rs 15.84 crore and Rs. 17.42 crore respectively and were at the bottom among all the districts in the state.

The cost of collection of major taxes in the state is shown in Table 2.29. The cost of collection of taxes has come down over the years in the state. Among the four categories of taxes listed in the table, the highest cost of collection is for taxes on vehicles. However, it has also come down to 2.7 percent in 2018-19 from 4.0 percent in 2014-15.

A comparison of the budgeted estimate and actual realisation of tax and non-tax revenue in the state is shown in Table 2.30. The shortfall in total revenue from the budgeted estimate was of Rs 1909 crore, which is 5.7 percent of the budgeted estimate. It is an improvement over the shortfall of 23.6 percent observed in 2017-18. The major sources of the revenue that missed the budgeted target during 2018-19 are — Taxes on Sales, Trade, etc., Stamp and Registration Fees, and Land Revenue in the tax category, and interest receipt in the non-tax revenue category.

Table 2.28 : District-wise Revenue from Stamp Duty and Registration Fees (2018-19)

(Rs crore)

District	No. of Document	Total Receipt (Registration and Stamp Fee)	Target	% receipt against target	Receipt per Document (Rs.)
Patna	86367	815.78	932.00	87.53	94455
Nalanda	31229	105.86	123.00	86.07	33898
Bhojpur	30225	133.43	136.00	98.11	44146
Buxar	15724	58.20	66.00	88.18	37013
Rohtas	29218	117.41	134.00	87.62	40184
Kaimur	17477	47.69	49.00	97.33	27287
Gaya	41840	180.57	200.00	90.29	43157
Jehanabad	9501	36.46	47.00	77.57	38375
Arwal	6322	15.84	20.00	79.20	25055
Nawada	21586	58.49	66.00	88.62	27096
Aurangabad	24482	99.42	110.00	90.38	40609
Saran	36391	103.53	128.00	80.88	28449
Siwan	37349	110.42	128.00	86.27	29564
Gopalganj	30917	99.38	117.00	84.94	32144
W. Champaran	47526	110.26	118.00	93.44	23200
E. Champaran	64173	193.67	225.00	86.08	30179
Muzaffarpur	56235	227.62	264.00	86.22	40477
Sitamarhi	40764	113.77	123.00	92.50	27909
Sheohar	8078	17.42	19.00	91.68	21565
Vaishali	40414	142.67	158.00	90.30	35302
Darbhanga	37920	131.40	140.00	93.86	34652
Madhubani	50492	112.69	127.00	88.73	22318
Samastipur	50988	122.06	140.00	87.19	23939
Begusarai	26775	110.72	128.00	86.50	41352
Munger	8063	42.95	49.00	87.65	53268
Sheikhpura	8764	20.45	21.00	97.38	23334
Lakhisarai	9170	32.86	38.00	86.47	35834
Jamui	16390	36.43	42.00	86.74	22227
Khagaria	12666	37.05	41.00	90.37	29252
Bhagalpur	28073	182.59	183.00	99.78	65041
Banka	20041	44.35	51.00	86.96	22130
Saharsha	20371	62.69	71.00	88.30	30774
Supaul	19184	48.24	61.00	79.08	25146
Madhepura	21378	55.56	66.00	84.18	25989
Purnea	40963	122.69	136.00	90.21	29951
Kishanganj	28631	51.17	58.00	88.22	17872
Araria	35657	68.97	81.00	85.15	19343
Katihar	40947	96.03	104.00	92.34	23452
Total	1152291	4166.79	4700.00	88.66	1265938

Source : Department of Prohibition, Excise and Registration, GoB

Table 2.29 : Cost of Collection of Taxes (2014-15 to 2018-19)

Year	Collection (Rs. crore)	Expenditure on collection (Rs. crore)	Cost as Percentage of Collection	Collection (Rs. crore)	Expenditure on collection (Rs. crore)	Cost as Percentage of Collection
	SGST & Taxes on Sales / Trade, etc.			Stamp duty and registration fee		
2014-15	8607	96	1.1	2699	52	1.9
2015-16	10603	90	0.8	3409	55	1.6
2016-17	11874	117	1.0	2982	48	1.6
2017-18	8298	72	0.9	3726	54	1.4
2018-19	6584	0	0.0	4189	65	1.5
	Taxes on Vehicles			State Excise		
2014-15	964	38	4.0	3217	50	1.6
2015-16	1081	40	3.7	3142	50	1.6
2016-17	1257	46	3.7	-30	92	—
2017-18	1600	62	3.9	-3	82	—
2018-19	2086	56	2.7	-10	98	—

Source : Finance Accounts, GoB

Table 2.30 : Variation between the Estimated and Actual Realisation of Tax and Non-Tax Revenue (2018-19)

Source of Revenue	Budget Estimate	Actuals	(Rs crore)	
			Variation (Excess (-), Shortfall +)	% Variation Excess (-), Shortfall (+)
Own Tax Revenue				
SGST/ Taxes on Sales, Trade, etc./ Taxes on Goods and Passengers	15000	15288.06	-288.059	-1.88
Taxes on Sales, Trade, etc.	7890	6584	1306	19.8
Taxes on Goods and Passengers	0	399	-399	-100
State Excise	0	-10	10	-100
Stamp and Registration Fees	4700	4189	511	12.2
Taxes on Vehicles	2000	2086	-86	-4.1
Land Revenue	1000	477	523	109.7
Taxes & Duties on Electricity	310	269	41	15.2
Other Taxes and Duties on Commodities and Services	102	126	-24	-19.2
Total	31002	29408	1594	5.4
Own Non Tax Revenue				
Non-Ferrous Mining and Metallurgical Industries	1600	1561	39	2.5
Interest Receipts	2187	1372	815	59.4
Miscellaneous General Services	0	4	-4	-100
Other Administrative Services	20	47	-27	-57.1
Police	46	30	16	51.9
Major Irrigation	50	37	13	35.4
Education, Sports, Arts and Culture	18	19	-1	-6.8
Roads and Bridges	72	118	-46	-38.8
Medical and Public Health	47	67	-20	-29.5
Other Rural Development Programmes	36	62	-26	-41.7
Social Security and Welfare	0	0	0	-74.5
Others	369	814	-445	-54.7
Total	4446	4131	315	7.6
Grant Total	35448	33539	1909	5.7

Source : Finance Accounts, GoB and State Government Budget

2.8 Expenditure Management

The expenditure of the State Government from the consolidated fund under various heads for the period 2014-15 to 2018-19 and the budgeted estimate for 2019-20 is shown in Table 2.31. Next, Tables 2.32 presents the percentage distribution of the total expenditure under major heads. Thereafter, Table 2.33 presents the year-to-year growth rates of expenditure.

There are three major functional categories of the State Government expenditure - General Services, Social Services and Economic Services. Apart from revenue expenditure and capital outlay on these three major services, the other areas of spending by the State Government are — repayment of loans on the capital account and grants to local bodies and autonomous institutions. The State Government also gives loans for various purposes to its Public Sector Undertakings, Urban Local Bodies, Panchayati Raj Institutions, and to its own employees. It is to be noted that while the repayments of principal amounts of loans are made from the capital account, the interest payment is made from the revenue account, under the General Services.

The social and economic services, essential for the development of the state, constitute a major share of the expenditure in Bihar, reflecting the State Government's commitment for overall development. In 2018-19, the total expenditure on General Services, Social Services and Economic Services increased to Rs 38,691 crore, Rs 58,284 crore and Rs 27,918 crore respectively. The growth rates observed in expenditure under these heads over the previous year are 15.9 percent, 27.3 percent and 18.9 percent, respectively. This has led to an increase in their share in total expenditure to 25.0 percent, 37.7 percent and 18.1 percent, respectively. The capital outlay decreased by 27.2 percent in 2018-19. Its share in total expenditure has come down from 21.2 percent in 2017-18 to 13.6 percent 2018-19. It might be noted here that, between 2014-15 and 2017-18, although the capital outlay has always increased, the year-to-year growth rate has steadily decreased.

For analysing the structure of expenditure by the State Government, Table 2.34 presents its percentage composition in revenue and capital account and some sub-heads under both of them. In the capital account, the share of the developmental capital expenditure has come down from 20.6 percent to 13.6 percent during the last two years. Also, the share of capital outlay (General Public Works, Social and Economic Services) has declined from 20.4 percent (2017-18) to 12.6 percent (2018-19) Correspondingly, the share of non-developmental capital expenditure increased from 4.2 percent to 5.7 percent during the last two years. Realising the role of capital expenditure in economic development, the share of capital expenditure is projected to increase to 22.6 percent in the budgeted estimate for 2019-20.

The expenditure on the discharge of public debt increased to Rs 7230 crore in 2018-19, from Rs 4654 crore in 2017-18. It is observed that the State Government has focussed on servicing of the debt in recent years. There is a significant jump in expenditure under the head 'discharge of public debt' in 2018-19, which registered an increase of 55.4 percent over the previous year.

Table 2.31 : Expenditure from Consolidated Fund (2014-15 to 2019-20)

(Rs crore)

Expenditure Head	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
General Services	26408	27972	30607	33374	38691	46146
Social Services	31713	35943	40737	45769	58284	75147
Economic Services	14445	19696	23417	23476	27918	33931
Grants- in-Aid	4	4	4	4	4	6
Capital Outlay	18150	23966	27208	28907	21058	36593
Discharge of Public Debt	3609	4125	4215	4654	7230	7236
Loans and Advances by State	369	621	114	243	1471	1442
Total	94698	112328	126302	136427	154655	200501

Source : Finance Accounts, GoB

Table 2.32 : Composition of Government Expenditure (2014-15 to 2019-20)

(Percentage)

Expenditure Head	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
General Services	27.9	24.9	24.2	24.5	25.0	23.0
Social Services	33.5	32.0	32.3	33.5	37.7	37.5
Economic Services	15.3	17.5	18.5	17.2	18.1	16.9
Capital Outlay	19.2	21.3	21.5	21.2	13.6	18.3
Discharge of Public Debt	3.8	3.7	3.3	3.4	4.7	3.6
Loans and Advances	0.4	0.6	0.1	0.2	1.0	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source : Finance Accounts, GoB

Table 2.33 : Growth Rates of Expenditure (2014-15 to 2019-20)

Expenditure Head	Annual Growth Rates					
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
General Services	19.9	5.9	9.4	9.0	15.9	19.3
Social Services	20.1	13.3	13.3	12.4	27.3	28.9
Economic Services	2.7	36.4	18.9	0.3	18.9	21.5
Capital Outlay	29.6	32.0	13.5	6.2	-27.2	73.8
Discharge of Public Debt	15.7	14.3	2.2	10.4	55.4	0.1
Loans and Advances	-54.3	68.5	-81.7	113.2	505.7	-2.0
Total	17.8	18.6	12.4	8.0	13.4	29.6

Source : Finance Accounts, GoB

Table 2.34 : Percentage Composition of Total Expenditure (2014-15 to 2019-20)

Expenditure Head	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Revenue Account	76.6	74.4	75.0	75.2	80.8	77.4
Non-Developmental Revenue Expenditure	27.5	24.5	23.9	24.1	24.7	22.6
Developmental Revenue Expenditure	49.2	49.9	51.1	51.1	56.1	54.8
General Services (Public Works)	0.4	0.4	0.3	0.4	0.4	0.4
Social Services	33.5	32.0	32.3	33.5	37.7	37.5
Economic Services	15.3	17.5	18.5	17.2	18.1	16.9
Capital Account	23.4	25.6	25.0	24.8	19.2	22.6
Non-Developmental Capital Expenditure	4.6	6.0	4.2	4.2	5.7	4.5
General Service (Except Public Works)	0.8	2.3	0.9	0.8	1.0	0.8
Discharge of Public Debt (General Services)	3.8	3.7	3.3	3.4	4.7	3.6
Loans and Advances by State (General Services)	0.0	0.0	0.0	0.0	0.0	0.0
Developmental Capital Expenditure	18.7	19.6	20.8	20.6	13.6	18.1
Capital Outlay (General-Public Works, Social and Economic Services)	18.4	19.0	20.7	20.4	12.6	17.4
Loans and Advances by State (Social and Economic Services)	0.4	0.5	0.1	0.2	1.0	0.7
Total Non- Developmental Expenditure	32.1	30.5	28.1	28.3	30.3	27.1
Total Developmental Expenditure	67.9	69.5	71.9	71.7	69.7	72.9
Total Expenditure	100.0	100.0	100.0	100.0	100.0	100.0

Source : Finance Accounts, GoB

The distribution of expenditure on development and non-development heads in the revenue account during recent years is shown in Table 2.35. Further details of revenue and capital expenditure in the state is presented in Table 2.36. The expenditure under both these heads has increased over the years, but their share in total expenditure has remained almost the same in the last few years. Out of the total expenditure of Rs 1,54,655 crore, the developmental expenditure was Rs. 1,07,737 crore and it is expected to increase to Rs 1,46,134 crore as per the budgeted estimate for 2019-20. The share of expenditure on revenue account in total expenditure has increased to 80.8 percent in 2018-19 from 75.2 percent in 2017-18. Correspondingly, the share of expenditure in the capital account was 19.2 percent in 2018-19 against 24.8 percent in 2017-18.

Table 2.35 : Development and Non-development Revenue Expenditure (2014-15 to 2019-20)

Amount	(Rs crore)					
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Non-Developmental Expenditure	30405	34251	35502	38656	46918	54367
Developmental Expenditure	64293	78077	90800	97771	107737	146134
Total Expenditure	94698	112328	126302	136427	154655	200501
Development Expenditure as % of Total Expenditure	67.9	69.5	71.9	71.7	69.7	72.9

Source : Finance Accounts, GoB and State Government Budget

The revenue expenditure increased by 21.7 percent between 2017-18 and 2018-19, whereas the capital expenditure declined by 12.0 percent (Table 2.36). The major component of the capital expenditure, the capital outlay declined by 27.2 percent during the same period. However, the capital expenditure and capital outlay are estimated to grow at 52.1 percent and 73.8 percent respectively in the budgeted estimate for 2019-20. The ratio of revenue expenditure to total expenditure and GSDP has increased in the last two years. At the same time, the ratio of revenue receipt to total expenditure has declined from 86.1 percent to 85.2 percent. The ratio of revenue receipt to total expenditure is budgeted to increase to 88.2 percent in 2019-20. The buoyancy of the revenue expenditure with respect to the GSDP was higher, compared to the buoyancy for revenue receipts in 2018-19.

Table 2.36 : Revenue and Capital Expenditure (2014-15 to 2019-20)

(Rs crore)

Expenditure Heads	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Revenue Expenditure (RE)	72570	83616	94765	102624	124897	155231
Capital Expenditure (CE)	22128	28712	31537	33803	29759	45270
Total Expenditure (TE)	94698	112328	126302	136427	154655	200501
GSDP	342951	371602	422316	484740	515634	572827
Rate of growth of RE (%)	16.2	15.2	13.3	8.3	21.7	24.3
Rate of growth of CE (%)	23.4	29.8	9.8	7.2	-12.0	52.1
Rate of growth of TE (%)	17.8	18.6	12.4	8	13.4	29.6
RE/TE (%)	76.6	74.4	75	75.2	80.8	77.4
TE/GSDP (%)	27.6	30.4	29.9	28.1	30	35
RE/GSDP (%)	21.2	22.6	22.4	21.2	24.2	27.1
Revenue Receipt (RR)/TE (%)	82.8	85.6	83.6	86.1	85.2	88.2
Buoyancy of RE w.r.t. GSDP	1.98	1.97	0.87	0.57	3.41	2.19
Buoyancy of RE w.r.t. RR	1.17	0.67	1.35	0.74	1.78	0.71

Source : Finance Accounts, GoB

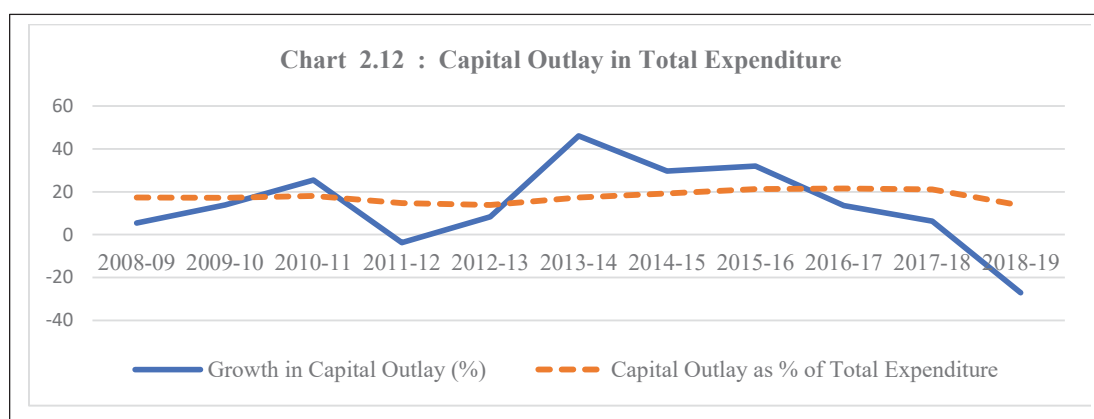
The capital outlay in the state has increased from Rs 18,150 crore in 2014-15 to Rs 28,907 crore in 2017-18 (Table 2.37). However, it declined by 27 percent to Rs 21,058 crore in 2018-19. The growth rate of the capital outlay has shown a declining trend since 2013-14 and it was negative in 2018-19. This has led to the reduction in the share of capital outlay in the total expenditure of the state to 13.6 percent (Chart 2.12). The capital outlay is projected to increase to Rs 36,593 crore in 2019-20, which is estimated to be 18.2 percent of the total expenditure as per the budget estimate for the year.

Table 2.37 : Revenue and Capital Outlay (2014-15 to 2019-20)

(Rs crore)

Amount	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Total Tax Revenue	57713	74372	82623	88220	103011	122922
Own Tax Revenue	20750	25449	23742	23136	29408	33800
Own Non-tax Revenue	1558	2186	2403	3507	4131	4806
Own Tax + Non-tax Revenue	22308	27635	26145	26643	33539	38606
Capital Outlay	18150	23966	27208	28907	21058	36593
Capital Outlay as % of Total Expenditure	19.17	21.34	21.54	21.19	13.62	18.25

Source : Finance Accounts, GoB and State Government Budget



Source : Finance Accounts, GOB

Table 2.38 presents the pattern of interest payment and receipt of the State Government during recent years. The net interest paid by the State Government increased by 16.4 percent in 2018-19 over the previous year. The difference between the Gross and Net interest payment is the interest earned by the State Government during a financial year. This difference increased from Rs 345 crore in 2014-15 to Rs 1577 crore in 2017-18. However, it declined to Rs 1372 crore in 2018-19.

Table 2.38 : Interest Payment and Receipt (2014-15 to 2019-20)

(Rs crore)

Amount	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Gross Interest Payment	6129	7098	8191	9054	10071	10723
Net Interest Payment	5784	6514	7251	7477	8699	8430

Source : Finance Accounts, GoB and State Government Budget

Expenditure on Salary and Pension

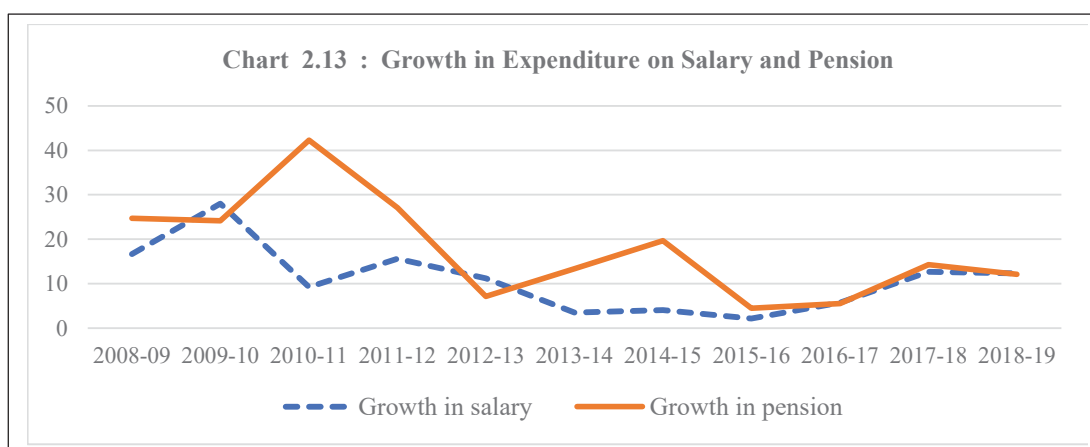
The expenditure by the State Government on salary and pension has grown by 12.2 percent in 2018-19 over the previous year to reach the level of Rs 35,996 crore (Table 2.39). It was 7.0 percent of the GSDP of the state in 2018-19. The expenditure on both these heads had single-digit growth rates during 2015-16 and 2016-17. The expenditure on pension has grown at a higher rate than the

salary expenditure during 2010-11 to 2017-18 (Chart 2.13). However, this trend is expected to reverse in the coming years when the impact of change in the pension scheme for the employees will be reflected in the expenditure. The recent higher growth on these two heads is the outcome of an increase in salary and pension as per the Pay Commission recommendations. The expenditure on salary and pension is 28.8 percent of the total revenue expenditure. This share has gradually come down over the years, from 35.8 percent in 2014-15 to 28.8 percent in 2018-19. The expenditure on salary as a share of total expenditure has also come down from 20.1 percent to 16.0 percent between 2014-15 and 2018-19. Simultaneously, the share of expenditure on pension has come down from 15.6 percent to 12.8 percent.

Table 2.39 : Expenditure on Salaries and Pensions (2014-15 to 2018-19)

Head	2014-15	2015-16	2016-17	2017-18	2018-19
Expenditure on Salaries (Rs crore)	14607	14924	15784	17779	19968
Rate of Growth (%)	4.07	2.17	5.76	12.64	12.32
Salary as percentage of GSDP	4.3	4	3.7	3.6	3.9
Salary as percentage of RR	18.6	15.5	14.9	15.1	15.2
Salary as percentage of RE	20.1	17.8	16.7	17.3	16
Expenditure on Pensions (Rs crore)	11345	11850	12508	14293	16027
Rate of Growth (%)	19.6	4.5	5.5	14.3	12.1
Pension as percentage of GSDP	3.3	3.2	2.9	2.9	3.1
Pension as percentage of RR	14.5	12.3	11.8	12.2	12.2
Pension as percentage of RE	15.6	14.2	13.2	13.9	12.8
Total expenditure on Salary & Pension (Rs crore)	25952	26774	28292	32072	35996
Rate of Growth (%)	10.35	3.17	5.67	13.36	12.23
Total as percentage of GSDP	7.6	7.2	6.6	6.6	7.0
Total as percentage of RR	33.1	27.9	26.8	27.3	27.3
Total as percentage of RE	35.8	32	29.9	31.3	28.8

Source : Finance Accounts, GoB



Sectoral Expenditure

Expenditure on Social Services

The expenditure on various heads under social services in the state is shown in Table 2.40. The total expenditure on social services increased by 24.6 percent to Rs 62,346 crore in 2018-19. This is a substantial increase compared to the previous years. The growth rate in the expenditure on social services in 2017-18 and 2016-17 was 12.9 percent and 14.6 percent respectively. It is budgeted to grow at 32.8 percent in 2019-20.

Table 2.40 : Expenditure on Social Services (2014-15 to 2019-20)

Expenditure Head	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Education, Sports, Arts & Culture						
Total Expenditure (Rs. crore)	16531	19155	20226	24833	28080	35942
Revenue Expenditure (Rs. crore)	16267	18605	19152	23315	27024	34458
(a) Salary component (%)	30	24	22.8	20.4	18.8	17.3
(b) Non-salary component (%)	70	76	77.2	79.6	81.2	82.7
Capital Outlay (Rs. crore)	263	550	1074	1519	1056	1484
Capital Outlay (%)	1.6	2.9	5.3	6.1	3.8	4.1
Health and Family Welfare						
Total Expenditure (Rs. crore)	3604	4571	5493	6182	7318	9157
Revenue Expenditure (Rs. crore)	3288	3481	4622	5617	6172	7216
(a) Salary component (%)	48.6	52.6	48.3	46.9	49.1	50.2
(b) Non-salary component (%)	51.4	47.4	51.7	53.1	50.9	49.8
Capital Outlay (Rs. crore)	316	1091	870	565	1146	1941
Capital Outlay (%)	8.8	23.9	15.8	9.1	15.7	21.2
Water Supply, Sanitation, Housing and Urban Development						
Total Expenditure (Rs. crore)	4542	4518	8786	7609	15638	20744
Revenue Expenditure (Rs. crore)	3639	3694	7463	5676	13921	16857
(a) Salary component (%)	6.5	6.3	3.1	4.6	1.9	1.7
(b) Non-salary component (%)	93.5	93.7	96.9	95.4	98.1	98.3
Capital Outlay (Rs. crore)	903	824	1323	1933	1717	3887
Capital Outlay (%)	19.9	18.2	15.1	25.4	11	18.7
Total (Social Services)						
Total Expenditure (Rs. crore)	33386	38684	44329	50028	62346	82779
Revenue Expenditure (Rs. crore)	31713	35943	40737	45769	58284	75147
(a) Salary component (%)	22.4	19.2	17.7	17.6	17.8	16.9
(b) Non-salary component (%)	77.6	80.8	82.3	82.4	82.2	83.1
Capital Outlay (Rs. crore)	1674	2740	3592	4258	4061	7632
Capital Outlay (%)	5.0	7.1	8.1	8.5	6.5	9.2

Source : Finance Accounts, GoB, (Appendix I)

In 2018-19, the expenditure on three major heads of the social services was — Rs. 28,080 crore (Education, Sports, Art and Culture), Rs. 7318 crore (Health and Family Welfare) and Rs. 15,638 crore (Water Supply, Sanitation, Housing and Urban Development). The growth in expenditure for these three components was 13.1 percent, 18.4 percent and 105.5 percent, respectively, over the previous year. The growth of 105.5 percent in expenditure under the head Water Supply, Sanitation, Housing and Urban Development is after a decline of 13.4 percent in 2017-18.

The Capital outlay was 6.5 percent of the total expenditure on social services. It was 15.7 percent and 11 percent of total expenditure for Health and Family Welfare; and Water Supply, Sanitation, Housing and Urban Development respectively in 2018-19. The expenditure on Education, Sports, Arts & Culture was 45 percent of the total expenditure on social services. However, the capital outlay was only 3.8 percent of the total expenditure on Education, Sports, Arts & Culture in 2018-19.

The share of salary expenses has varied across subheads of social services. The expense on salary component was 17.8 percent of the total expenditure taking into account all social services. However, it was 49.1 percent for Health and Family Welfare, 18.8 percent for Education, Sports, Arts and Culture, and 1.9 percent for Water Supply, Sanitation, Housing and Urban Development.

Expenditure on Economic Services

The expenditure on major heads under economic services (Agriculture and Allied Activities, Irrigation and Flood Control, Energy and Power, Industry and Minerals, and Transport) is presented in Table 2.41. The total expenditure on these heads was Rs 28,113 crore in 2018-19 and it accounted for 67.6 percent of the total expenditure, which is higher than the share of 59.0 percent in 2017-18.

The revenue component of the expenditure on economic services increased by 18.9 percent to Rs 27,918 crore in 2018-19, whereas the capital outlay declined by 37.5 percent to Rs 13,686 crore. The total expenditure on economic services declined from Rs 45,360 crore in 2017-18 to Rs 41,603 crore in 2018-19. However, it is projected to grow at 40 percent in the budgeted estimate for 2019-20. The share of expenditure on salary came down to 8.3 percent of the revenue expenditure on economic services in 2018-19 from 10.2 percent in 2017-18. Also, the share of capital outlay on economic services came down from 48.2 percent in 2017-18 to 32.9 percent in 2018-19. Both these expenses are budgeted to increase in 2019-20. It is to be noted that compared to social services, the capital outlay in economic services has always been higher, as is evident from Tables 2.40 and 2.41.

Table 2.41 : Expenditure on Economic Services (2014-15 to 2019-20)

Expenditure Head	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Agriculture and Allied Activities						
Total Expenditure (Rs. crore)	3615	4120	2414	3824	3740	6537
Revenue Expenditure (Rs. crore)	3431	3515	2287	3626	3636	6220
(a) Salary component (%)	13.9	14.6	22.7	16.3	21.0	15.0
(b) Non-salary component (%)	86.1	85.4	77.3	83.7	79.0	85.0
Capital Outlay (Rs. crore)	185	605	128	198	105	317
Capital Outlay (%)	5.1	14.7	5.3	5.2	2.8	4.8
Irrigation and Flood Control						
Total Expenditure (Rs. crore)	2444	2836	2844	3967	3406	4357
Revenue Expenditure (Rs. crore)	1020	1151	1048	1301	1360	1575
(a) Salary component (%)	58.0	57.0	56.9	51.2	50.8	45.9
(b) Non-salary component (%)	42.0	43.0	43.1	48.8	49.2	54.2
Capital Outlay (Rs. crore)	1424	1685	1796	2665	2046	2782
Capital Outlay (%)	58.3	59.4	63.1	67.2	60.1	63.9
Energy and Power						
Total Expenditure (Rs. crore)	7948	8945	13437	11236	11958	8795
Revenue Expenditure (Rs. crore)	3773	6151	7698	4305	6923	4318
(a) Salary component (%)	0.0	0.0	0.0	1.0	0.0	0.0
(b) Non-salary component (%)	100.0	100.0	100.0	99.0	100.0	100.0
Capital Outlay (Rs. crore)	4175	2794	5739	6931	5035	4477
Capital Outlay (%)	52.5	31.2	42.7	61.7	42.1	50.9
Industry and Minerals						
Total Expenditure (Rs. crore)	564	1230	1116	866	938	1184
Revenue Expenditure (Rs. crore)	561	1201	888	756	840	1062
(a) Salary component (%)	11.5	5.2	5.7	7.8	9	12
(b) Non-salary component (%)	88.5	94.8	93.0	90.7	91	88
Capital Outlay (Rs. crore)	3	29	228	110	98	121
Capital Outlay (%)	0.5	2.4	20.4	12.8	10.4	10.2
Transport						
Total Expenditure (Rs. crore)	5194	6130	7388	6804	8071	8360
Revenue Expenditure (Rs. crore)	996	1712	1787	1402	2795	2673
(a) Salary component (%)	21.7	13.9	13.0	19.0	10.0	16.0
(b) Non-salary component (%)	78.3	86.1	87.0	81.0	90.0	84.0
Capital Outlay (Rs. crore)	4198	4417	5601	5402	5275	5687
Capital Outlay (%)	80.8	72.1	75.8	79.4	65.4	68.0
Total (Economic Services)						
Total Expenditure (Rs. crore)	29173	37305	44943	45360	41603	58245
Revenue Expenditure (Rs. crore)	14445	19696	23417	23476	27918	33931
(a) Salary component (%)	14.4	11.2	9.2	10.2	8.3	9.9
(b) Non-salary component (%)	85.6	88.8	90.8	89.8	91.8	90.1
Capital Outlay (Rs. crore)	14728	17609	21526	21884	13686	24314
Capital Outlay (%)	50.5	47.2	47.9	48.2	32.9	41.7

Source : Finance Accounts, GoB (Appendix I)

The per capita expenditure on social and economic services in the state for years 2014-15 to 2018-19 and the budgeted estimate for the year 2019-20 is shown in Table 2.42, using the estimated population of Bihar. The per capita expenditure has increased for most of the heads mentioned in the table, except for economic services and the capital outlay. The per capita expenditure on social services and economic services was Rs 5116 and Rs 3414 respectively in 2018-19. A year before, the per capita expenditure was Rs. 4199 and Rs. 3807 respectively.

The per capita expenditure on Medical and Public health has consistently increased in the state over the years. It increased from Rs 519 in 2017-18 to Rs 600 in 2018-19. From Table 2.40, it is also observed that 49 percent of this is spent on salary expenses under this head, and this leaves in effect Rs 305 per capita to be spent on Medical and Public Health in 2018-19. The per capita expenditure on Education, Sports, art and Culture increased from Rs 2084 in 2017-18 to Rs. 2304 in 2018-19.

Table 2.42 : Per Capita Expenditure on Social and Economic Services (2014-15 to 2019-20)

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Estimated Population (crore)	10.9	11.1	11.3	11.5	11.7	11.9
Total Expenditure (Rs. crore)						
Education, Sports, art & Culture	16531	19155	20226	24833	28080	35942
Medical and Public Health	3604	4571	5493	6182	7318	9157
Water Supply and Sanitation	4542	4518	8786	7609	15638	20744
Social Services	33386	38684	44329	50028	62346	82779
Economic Services	29173	37305	44943	45360	41603	58245
Capital Outlay	18150	23966	27208	28907	21058	36593
General Services	28157	31589	32697	36139	42002	50793
Per Capita Expenditure (Rs.)						
Education, Sports, art & Culture	1513	1724	1791	2162	2404	3025
Medical and Public Health	330	411	486	538	626	771
Water Supply and Sanitation	416	407	778	662	1339	1746
Social Services	3055	3482	3924	4355	5337	6966
Economic Services	2670	3358	3979	3949	3561	4901
Capital Outlay	1661	2157	2409	2517	1803	3079
General Services	2577	2843	2895	3146	3595	4274

Source : Finance Accounts and State Government Budgets

The data on some of the parameters used to judge the quality of expenditure is reported in Table 2.43. The parameters of quality in expenditure shown in the table are — (i) ratio of capital outlay to total expenditure, (ii) ratio of capital outlay to GSDP, (iii) ratio of revenue expenditure on social and economic services to GSDP, and (iv) ratio of non-salary expenditure incurred on social and economic services. Both the ratios of capital outlay to total expenditure and capital outlay to GSDP have declined in 2018-19, after increasing steadily in the previous four years. It is projected to increase in the budgeted estimate for 2019-20. In terms of the other two parameters, the quality of expenditure has shown improvement in Bihar in recent years.

Table 2.43 : Quality Parameters of Expenditure (2014-15 to 2019-20)

Expenditure Head	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Capital Outlay (Rs. crore)	18150	23966	27208	28907	21058	36593
Revenue Expenditure (Rs. crore)	72570	83616	94765	102624	124897	155231
Of which Social and Economic Services	46158	55639	64154	69245	86202	109078
(a) Salary Component (Rs. crore)	9176	9108	9349	10458	11265	13836
Percentage of salary component (%)	19.9	16.4	14.6	15.1	13.1	12.7
(b) Non-salary component (Rs. crore)	36982	46531	54805	58788	74937	95242
Percentage of non-salary component (%)	80.1	83.6	85.4	84.9	86.9	87.3
Capital Outlay/ Total Expenditure (%)	19.2	21.3	21.5	21.2	13.6	18.3
Revenue Expenditure / Total Expenditure (%)	76.6	74.4	75.0	75.2	80.8	77.4
Revenue Expenditure on Social and Economic Services /GSDP (%)	21.2	22.5	22.4	21.2	24.2	27.1
Capital Outlay / GSDP (%)	5.3	6.5	6.4	5.9	4.1	6.4

Source : Finance Accounts and State Government Budgets

Finally, the structure of receipts and expenditure of the state government is summarised in Table 2.44. The data indicates that there was a structural change in the composition of receipt and expenditure in the state between 2017-18 to 2018-19. On the receipt side, the share of Grants-in-Aid and Contributions came down from 19.7 percent to 16.2 percent, whereas the share of Public Debt increased from 10.1 percent to 12.3 percent. Further, the share of expenditure on social services increased from 33.5 percent to 37.7 percent between 2017-18 and 2018-19, whereas the share of the capital outlay came down from 21.2 percent to 13.6 percent.

Table 2.44 : Percentage Distribution of Consolidated Fund – Receipts and Expenditure (2017-18 to 2019-20)

Receipt	2017-18	2018-19	2019-20 BE	Expenditure	2017-18	2018-19	2019-20 BE
Revenue Account				Revenue Account			
Tax Revenue	67.5	67.6	61	General Services	24.5	25	23
Non-Tax Revenue	2.7	2.7	2.4	Social Services	33.5	37.7	37.5
Grants-in-Aid and Contributions	19.7	16.2	24.3	Economic Services	17.2	18.1	16.9
Capital Account				Capital Account			
Public Debt	10.1	12.3	12.1	Discharge of Public Debt	3.4	4.7	3.6
Recovery of Loans and Advances	0	1.2	0.2	Loans and Advances	0.2	1	0.7
Inter-State Settlement	0	0	0	Capital Outlay	21.2	13.6	18.3
Total	100	100	100	Total	100	100	100

Source : Finance Accounts and State Government Budgets

APPENDIX

Data corresponding to the figures used in the chapter are presented in the following tables. The sources of the data are: Finance Accounts, State Government Budgets and previous Economic Surveys of Bihar.

Table A 2.1 : Revenue Deficit of Bihar (2001-02 to 2009-10)

(Rs crore)

Year	Revenue Deficit	Year	Revenue Deficit
2001-02	2342	2010-11	-6316
2002-03	2457	2011-12	-4820
2003-04	1107	2012-13	-5101
2004-05	-1076	2013-14	-6441
2005-06	-81	2014-15	-5848
2006-07	-2498	2015-16	-12507
2007-08	-4647	2016-17	-10819
2008-09	-4469	2017-18	-14823
2009-10	-2943	2018-19	-6897

Table A 2.2 : Revenue Accounts of Bihar Government (2013-14 to 2019-20)

(Rs crore)

Head	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE
Total Receipts Revenue Account	68918.55	78417.53	96123.1	105584.6	117446.7	131793.5	176747.6
Tax Revenue	54789.76	57713.29	74371.86	82622.85	88219.87	103011.3	122921.8
Non-Tax Revenue	1544.76	1557.982	2185.641	2402.764	3506.737	4130.562	4806.467
Grants-in-Aid and Contributions	12584.03	19146.26	19565.6	20559.02	25720.13	24651.63	49019.38
Total Expenditure (Revenue Account)	62477.34	72569.97	83615.94	94765.18	102623.7	124896.8	155230.7

Table A 2.3 : Receipts in Revenue Account (2017-18 and 2018-19)

(Rs crore)

Head	2017-18	2018-19
Tax Revenue	88219.87	103011.3
Non-Tax Revenue	3506.737	4130.562
Grants-in-Aid and Contributions	25720.13	24651.63

Table A 2.4 : Composition of Revenue Receipts (1990-91 to 2004-05)

(Percentage share)

Year	Own Tax Revenue	Transfer from Central Taxes	State's Own Non-Tax Revenue	Grants from the Centre	Year	Own Tax Revenue	Transfer from Central Taxes	State's Own Non-Tax Revenue	Grants from the Centre
1990-91	26.4	37.4	17.7	18.5	2005-06	20.00	58.4	2.9	18.7
1991-92	27.0	39.5	11.2	22.4	2006-07	17.5	57.6	2.2	22.7
1992-93	26.2	38.4	13.0	22.4	2007-08	18.0	59.4	1.9	20.7
1993-94	26.4	37.7	13.4	22.6	2008-09	18.7	53.6	3.5	24.1
1994-95	27.0	41.0	14.3	17.6	2009-10	22.8	51.2	4.7	21.3
1995-96	26.8	47.2	12.4	13.6	2010-11	22.2	53.8	2.2	21.8
1996-97	28.0	50.7	13.2	8.1	2011-12	24.6	54.4	1.7	19.3
1997-98	27.5	46.9	4.5	21.1	2012-13	27.3	53.6	1.9	17.2
1998-99	28.8	47.9	12.4	10.9	2013-14	29.0	50.5	2.2	18.3
1999-00	28.9	40.5	14.0	16.6	2014-15	26.5	47.1	2.0	24.4
2000-01	25.8	57.7	7.1	9.4	2015-16	26.5	50.9	2.3	20.4
2001-02	23.9	60.4	3.5	12.2	2016-17	22.5	55.8	2.3	19.5
2002-03	23.9	58.1	2.8	15.2	2017-18	24.0	48.9	2.2	24.9
2003-04	24.8	55.7	3.3	16.2	2018-19	19.6	48.2	2.8	29.4
2004-05	21.3	58.0	2.7	18.0					

Table A 2.5 : Sectoral Expenditure (2017-18 and 2018-19) (Rs crore)

Head	2017-18	2018-19
General Services	33374	38691.01
Social Services	45769	58284.31
Economic Services	23476	27918

Table A 2.6 : Gross Fiscal Deficit as percentage of GSDP in Bihar (2007-08 to 2018-19)

Year	GFD as Percentage of GSDP	Year	GFD as Percentage of GSDP
2007-08	1.50	2013-14	2.63
2008-09	1.76	2014-15	3.26
2009-10	3.24	2015-16	3.25
2010-11	1.95	2016-17	3.90
2011-12	2.39	2017-18	2.95
2012-13	2.32	2018-19	2.68

Table A 2.7 : Revenue Surplus and Capital Outlay in Bihar (2006-07 to 2018-19)

(Rs crore)

Year	Revenue Surplus	Capital Outlay	GFD	Year	Revenue Surplus	Capital Outlay	GFD
2006-07	2498	5211	3021	2013-14	6441	14001	8352
2007-08	4647	6104	1703	2014-15	5848	18150	11178
2008-09	4469	6436	2507	2015-16	12507	23966	12062
2009-10	2943	7332	5272	2016-17	10819	27208	16480
2010-11	6316	9196	3970	2017-18	14823	28907	14305
2011-12	4820	8852	5915	2018-19	6897	21058	13807
2012-13	5101	9585	6545				

Table A 2.8 : Outstanding Liability as Percentage of GSDP (2007-08 to 2018-19)

Year	Liability as Percentage of GSDP	Year	Liability as Percentage of GSDP
2007-08	44.9	2013-14	27.4
2008-09	38.6	2014-15	28.9
2009-10	36.0	2015-16	31.4
2010-11	30.9	2016-17	32.8
2011-12	27.4	2017-18	32.3
2012-13	27.1	2018-19	32.8

Table A 2.9 : Percentage Growth in Revenue Receipt and Expenditure (2008-09 to 2018-19)

(Growth in percentage)

Year	Revenue Receipt	Revenue Expenditure	Revenue surplus
2008-09	16.91	21.00	3.14
2009-10	7.72	14.28	1.81
2010-11	25.35	17.29	3.10
2011-12	15.24	21.68	1.95
2012-13	16.07	17.13	1.81
2013-14	15.70	14.71	2.03
2014-15	13.78	16.15	1.71
2015-16	22.58	15.22	3.37
2016-17	9.84	13.33	2.56
2017-18	11.23	8.29	3.06
2018-19	12.22	21.70	1.34

Table A 2.10 : State's Own Tax Receipts / GSDP (2007-08 to 2018-19)

(Percentage)

Year	State's Own Tax Receipts / GSDP (%)	Year	State's Own Tax Receipts / GSDP (%)
2007-08	4.47	2013-14	6.29
2008-09	4.34	2014-15	6.05
2009-10	4.97	2015-16	6.85
2010-11	4.85	2016-17	5.62
2011-12	5.10	2017-18	4.77
2012-13	5.76	2018-19	5.70

Table A 2.11 : Collection from GST in 2018-19

(Rs crore)

Year	GST	IGST	SGST Grant
2018-19	4871.6	10419.2	2571.0

Table A 2.12 : Capital Outlay in Total Expenditure (2008-09 to 2019-20)

Year	Growth in Capital Outlay (%)	Capital Outlay as % of Total Expenditure
2008-09	5.45	17.31
2009-10	13.92	17.13
2010-11	25.42	18.14
2011-12	-3.74	14.71
2012-13	8.28	13.85
2013-14	46.08	17.41
2014-15	29.64	19.17
2015-16	32.04	21.34
2016-17	13.53	21.54
2017-18	6.24	21.19
2018-19	-27.15	13.62
2019-20 BE	73.77	18.25

Table A 2.13 : Growth in expenditure on salary and pension (2008-09 to 2019-20)

(Percentage)

Year	Growth in salary	Growth in pension	Year	Growth in salary	Growth in pension
2008-09	16.64	24.74	2014-15	4.07	19.65
2009-10	28	24.13	2015-16	2.17	4.46
2010-11	9.23	42.26	2016-17	5.76	5.55
2011-12	15.58	27.09	2017-18	12.64	14.27
2012-13	11.19	7.11	2018-19	12.32	12.13
2013-14	3.53	13.37	2019-20 BE	22.88	15.16

CHAPTER - III

AGRICULTURE AND ALLIED SECTORS

Agriculture is the most healthful, most useful and most noble employment of man.

— George Washington

Abstract

Agriculture is the mainstay of economies such as Bihar, underpinning their food security, employment, and rural development. It supports the livelihoods of more than three-fourth of the population. Besides generating employment, it also provides raw material to industries, augments food supply, and assists in poverty alleviation. The contribution of agricultural sector to State's GSVAs stands around 20 percent in 2017-18. The share of crop sector in total GSVAs was 10.64 percent during 2018-19. Despite the constraints of finite land resource, fragmented land holdings, and erratic rainfall, the production performance of crop and horticulture has been encouraging. In 2018-19, foodgrain production in Bihar stood at 163.12 lakh tonnes. Livestock, fisheries, and aquaculture together contributed about 7.10 percent of Gross value added in agriculture sector in Bihar during 2018-19. The total fish production in Bihar increased from 4.79 lakh tonnes in 2013-14 to 6.02 lakh tonnes in 2018-19, registering a compound annual growth rate of 6.22 percent. The demands for financial resources for cropping, farm investments, purchase of inputs and other machinery have been increasing in Bihar. A sum of Rs. 1.54 lakh crore has been allocated for the Third Agriculture Roadmap 2017-22 for the development of agriculture and allied sectors, to include projects to strengthen irrigation, flood protection, food processing, and dairy development. The State Government is undertaking various schemes to promote climate-resilient agricultural practices; provide technological assistance; and improve access to modern inputs to ensure livelihood security to the farming community.

Economic activities in states such as Bihar are closely linked to development of agriculture and allied sectors for its significant links with food and nutritional security. Not only does this sector augment food supply, it also generates employment opportunities, improves livelihood opportunities, and causes poverty alleviation. Over the last two decades, the economy of Bihar has undergone a structural change, as evident in the shift in the sectoral composition of Gross State

Domestic Product (GSDP) from agriculture to service sector. The relative share of agricultural sector in state's GSDP declined from 35.8 percent in 2000-01 to 19.7 percent in 2017-18 due to the increase in share of Tertiary Sector. However, its continued importance lies in the fact that more than 70 percent of the population is engaged in agricultural operations. Since the bifurcation of the state in 2000, the bulk of the mineral resources are currently in the state of Jharkhand. Therefore, a vibrant agricultural system forms a crucial part of the development strategy of overall economic growth in Bihar. Achieving high and sustained growth in agricultural sector is crucial to creating both on-farm and off-farm employment opportunities and improving income, particularly for the poor.

Located in the sub-tropical region of the temperate zone, Bihar is situated between 24⁰ 20' N to 27⁰ 31' N latitude and 83⁰ 19' E to 88⁰ 17' E longitude. The Ganges divides the state into two halves — Northern Bihar, which is densely populated and mostly involved in agricultural activities, while the Southern Bihar has a mix of agricultural and industrial activities. The Northern Bihar receives its water from the Himalayan rivers and is flood-prone, while the Southern Bihar is mostly drought-prone, and relies on rivers from Central India. Based on rainfall, temperature, soil and terrain, the state is divided into three agro-climatic zones — North-West alluvial plain, North-East alluvial plain and South Bihar alluvial plain. Compared to the Southern part, the alluvial plains of the north-western and north-eastern regions receive higher rainfall. As a land-locked state, Bihar has around 8.6 percent of India's population, while its agricultural land area is only 3.8 percent of India. The population density of Bihar is one of the highest in the country at 1106 per square kilometre, compared to 382 per square kilometre in India, as per Census, 2011. Overall, the rising population, limited arable land, fragmented land holdings, high cost of inputs, erratic rainfall, floods and land degradation pose serious challenges to agricultural sector in Bihar.

To reach the agricultural potential, the State Government has initiated several programmes under the Agriculture Roadmap for development of crop, livestock, fisheries, dairy and irrigation sector in Bihar. The main objective of the Agriculture Roadmap of the State Government lies in creating an enabling environment to achieve profitable and sustainable farming to ensure food and nutritional security to the growing population. The State Government is undertaking various schemes to promote climate-resilient agricultural practices, provide technological assistance and improve access to modern inputs to ensure livelihood security to the farming community.

The contribution of agriculture and allied sectors in Gross State Value Added (GSVA) in Bihar for the period 2013-14 to 2018-19 is given in Table 3.1. Overall, the contribution of agriculture and allied sectors to GSVA in Bihar decreased from 22.8 percent in 2013-14 to 19.3 percent in 2018-19. During 2018-19, the largest contributor to GSVA was the crop sector (10.6 percent);

while the lowest contributor was fishing and aquaculture (1.5 percent). The livestock sector is emerging as an important segment in Bihar, as evident from its increasing contribution to state's GSVA from 5.4 percent in 2013-14 to 5.6 percent in 2018-19. The share of crop sector in total GSVA was 10.6 percent during 2018-19, a decrease of 3.6 percentage points from 14.2 percent in 2013-14. Forest and logging sector contributed to around 1.6 percent of total GSVA in Bihar in 2018-19. Assessing the trend of contribution of agricultural sector to the state's GSVA over the last six years, it is indicated that the prospects of crop, livestock and fisheries are critical to spearheading agricultural growth in Bihar.

Table 3.1 : Share of Agriculture Sector in Gross State Value Added (2013-14 to 2018-19)

(at constant prices)

Sector	2013-14	2014-15	2015-16	2016-17	2017-18 (P)	2018-19 (Q)
Agriculture, Forestry and Fishing	22.8	22.0	21.2	21.6	21.0	19.3
Crops	14.2	13.1	12.4	12.7	12.1	10.6
Livestock	5.4	5.7	5.7	5.6	5.6	5.6
Forestry and Logging	1.7	1.6	1.5	1.8	1.6	1.6
Fishing and Aquaculture	1.6	1.7	1.7	1.5	1.6	1.5

Note : Data of 2017-18 is Provisional Estimates and of 2018-19 is Quick Estimates
Source : Directorate of Economics and Statistics, GoB

3.1 Public Expenditure in Agricultural Sector

Given that the multiplier effects of agriculture on poverty reduction is large, the State Government has allocated substantial financial resources to promote sustainable agricultural growth through targeted investments, infrastructure development and incentive schemes in Bihar. The Agriculture Roadmap III (2017-22) has allocated a sum of Rs. 1.54 lakh crore for development of agriculture and allied sectors, which includes projects to strengthen irrigation, flood protection, food processing, and dairy development. The public spending on agricultural sector will enhance the adoption of high-yielding varieties of seeds, modern technology and other implements needed to improve productivity.

The trends in public expenditure in agriculture and sub-sectors are presented in Table 3.2 for the period 2010-11 to 2018-19. The total expenditure of the State Budget for agriculture and allied sector stood at Rs. 5176 crore in 2018-19, accounting for 9.7 percent of the expenditure of the total economic services. Among the sub-sectors, the highest expenditure was observed in crop sector at Rs. 2674 crore, followed by expenditure for food storage (Rs. 552 crore) during 2018-19. The

compound annual growth in expenditure for agriculture and allied sector during 2014-15 to 2018-19 was 11.0 percent. Thus, the overall public expenditure on agriculture and allied sectors in Bihar increased from Rs. 3615 crore in 2014-15 to Rs. 5176 crore in 2018-19. However, its overall share in total economic services has decreased from 12.4 percent in 2014-15 to 9.6 percent in 2018-19. The public expenditure from state budget for agricultural research and education has been on a decline during the last five years. One of the reasons for this could be conversion of Rajendra Agriculture University to Dr. Rajendra Prasad Central Agriculture University, Pusa. However, there has been a spurt in expenditure for animal husbandry from Rs. 156 crore in 2014-15 to Rs. 451 crore in 2018-19.

Table 3.2 : Trends in Expenditure in Agriculture and Allied Sector (2014-15 to 2018-19)

(Rs. lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Crop Husbandry	188035 (6.4)	174915 (4.7)	99201 (2.2)	299151 (5.4)	267419 (5.0)
Soil and Water Conservation	3000 (0.1)	3944 (0.1)	8314 (0.2)	9077 (0.2)	14003 (0.3)
Animal Husbandry	15606 (0.5)	20489 (0.6)	23598 (0.5)	45209 (0.8)	45055 (0.8)
Dairy Development	13577 (0.5)	8657 (0.2)	9749 (0.2)	12619 (0.2)	11185 (0.2)
Fisheries	3039 (0.1)	4434 (0.1)	3791 (0.1)	10571 (0.2)	10326 (0.2)
Forestry and Wild Life	32501 (1.1)	28258 (0.8)	33176 (0.7)	31299 (0.6)	40674 (0.8)
Food Storage/ Warehousing	30698 (1.0)	108513 (2.9)	1331 (neg.)	80983 (1.5)	55221 (1.0)
Agricultural Research/ Education	58943 (2.0)	35158 (0.9)	45619 (neg.)	37196 (0.7)	40405 (0.8)
Co-operation	16140 (0.6)	27286 (0.7)	17981 (neg.)	44763 (0.8)	32220 (0.6)
Other Programmes	—	338 (neg.)	1348 (neg.)	1545 (neg.)	1143 (neg.)
Agriculture/ Allied Activities	361538 (12.4)	411993 (11.0)	241446 (5.4)	572414 (10.3)	517650 (9.7)

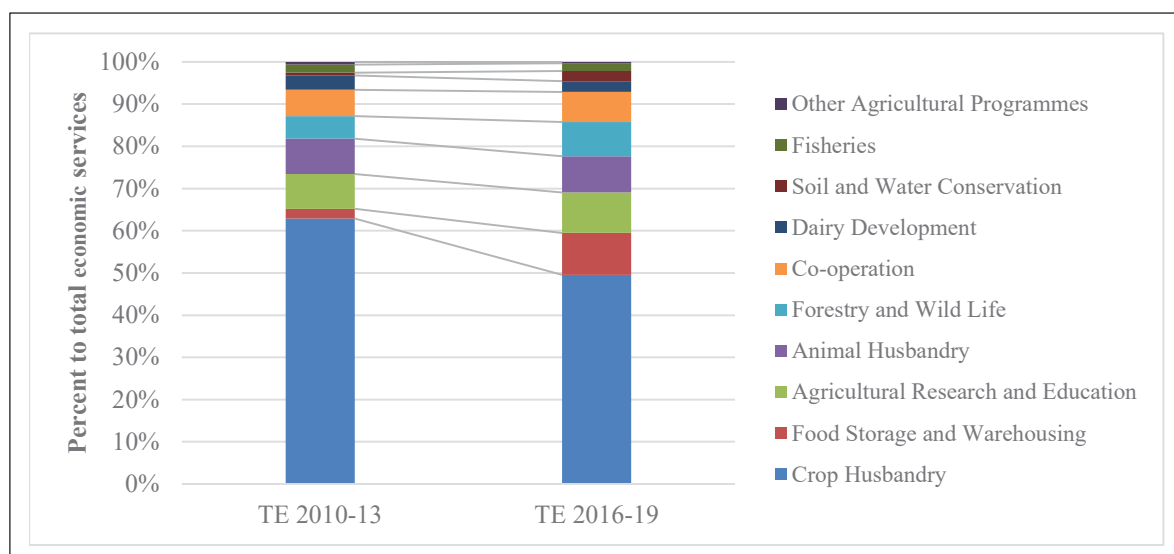
Note : Figures in parentheses denote percentage to total economic services

Source : State Budget Documents

Chart 3.1 presents a snapshot of the trends in expenditure in sub-sectors of agriculture and allied sector as a share in total economic services in two periods, trienniums 2010-13 and 2016-19. Overall, the share of expenditure of agriculture and allied sectors in total economic services decreased from 13.6 percent in triennium 2010-13 to 8.4 percent in triennium 2016-19. Though expenditure on crop husbandry remains the highest, there has been a decline in its share in triennium 2016-19. Overall, the State Government has prioritized the development of agricultural sector by allocating substantial public resources to crop, animal husbandry, food storage and warehousing in Bihar.

Chart 3.1 : Trends in Public Expenditure in Agriculture and Allied Sectors

(Percent to Total Economic Services)



Source : State Budget Documents, Bihar

3.2 Land Resources

The land resources form a basis of production of food, fodder, and fibre in any economy to enable expansion of economic, social, and human activity. With increasing demand and competing uses of land for both agriculture and non-agricultural purposes, land is becoming increasingly scarce for cultivation. Further, increasing population, migration, deforestation, soil degradation and risks of climate change pose challenge to sustainable management of land resources. The amount of land is finite, but the demands for alternative uses (other than agriculture) are growing, calling for proper planning for optimal use of land resources.

Pattern of Land Utilization

The overall pattern of land utilization has largely remained unchanged in Bihar during the period 2015-16 to 2017-18, as shown in Table 3.3. Agricultural land constitutes a substantial part of Bihar's total geographical area, as nearly 56.0 percent is under net sown area (52.42 lakh hectares) in 2017-18. The gross cropped area was 75.25 lakh hectares in 2017-18, implying a cropping intensity of 144 percent. The land under miscellaneous tree crops amounted to 2.48 lakh hectares, which is 2.6 percent of the total area in the state; while permanent pastures account for about 0.2 percent of the total geographical area in 2017-18. The total unculturable land slightly decreased from 41.55 lakh hectares in 2015-16 to 41.18 lakh hectares in 2017-18, accounting for 44.0 percent of total geographical area. The gradual decrease in culturable waste could be partly due to increasing pressure on land for both agricultural and non-agricultural purposes. Around 11.1 percent of the total geographical area falls under total fallow land. The land put to non-agricultural

uses has marginally increased from 17.13 lakh hectares to 17.18 lakh hectares during 2015-16 to 2017-18. This could be largely attributed to increasing urbanization, industrialization, infrastructure development and increasing settlements leading to conversion of land to non-agricultural uses. Overall, Bihar shows consistency in land use pattern over the three-year period.

Table 3.3 : Land Utilization Pattern (2015-16 to 2017-18)

(Area in '000 hectares)

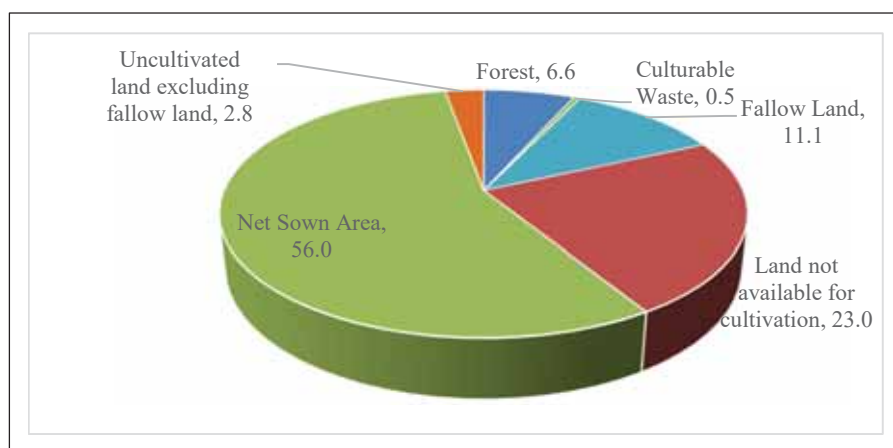
No.	Land Use	2015-16	2016-17	2017-18
1	Geographical Area	9359.57 (100.0)	9359.57 (100.0)	9359.57 (100.0)
2	Area under Forest	621.64 (6.6)	621.64 (6.6)	621.64 (6.6)
3	Land not available for cultivation			
	(a) Barren and Unculturable Land	431.72 (4.6)	431.72 (4.6)	431.72 (4.6)
	(b) Land put to Non-agricultural use	1713.02 (18.3)	1718.59 (18.4)	1718.31 (18.4)
	<i>Land Area</i>	1360.65 (14.5)	1366.15 (14.6)	1366.65 (14.6)
	<i>Water Area</i>	352.37 (3.8)	352.44 (3.8)	351.66 (3.8)
4	Culturable Waste	44.46 (0.5)	44.41 (0.5)	44.28 (0.5)
5	Uncultivated land excluding fallow land			
	(a) Permanent Pastures	15.23 (0.2)	15.14 (0.2)	15.08 (0.2)
	(b) Land under Tree Crops	247.95 (2.6)	248.05 (2.6)	248.15 (2.6)
6	Fallow Land			
	(a) Current Fallow	961.42 (10.3)	868.01 (9.3)	919.5 (9.8)
	(b) Other Fallow Land	119.24 (1.3)	119.08 (1.3)	118.92 (1.3)
7	Total Unculturable Land (2 to 6)	4154.68 (44.4)	4066.64 (43.4)	4117.60 (44.0)
8	Net Sown Area	5204.90 (55.6)	5292.93 (56.6)	5241.97 (56.0)
9	Gross Sown Area	7572.41	7654.36	7525.18
	Cropping Intensity	1.45	1.45	1.44

Note : The figures in parentheses denote percentage share in total geographical area

Source : Directorate of Economics and Statistics, GoB

Chart 3.2 : Land Utilization (2017-18)

(In percentage)



A closer look at the land use pattern at the district level, as presented in Table A3.1 (Statistical Appendix), reveals wide variations. The net sown area was the highest in East Champaran (2.83 lakh hectares), while the lowest in Sheohar (0.23 lakh hectares). Cropping intensity was the highest in Saharsa (1.95), while it was the lowest in Bhojpur (1.07) during 2017-18. About 20 districts recorded cropping intensities higher than the state average of 1.44 in 2017-18. The districts such as Kaimur (1.13 lakh hectares), Jamui (0.93 lakh hectares), West Champaran (0.92 lakh hectares), Gaya (0.78 lakh hectares), Rohtas (0.67 lakh hectares) and Nawada (0.64 lakh hectares) together accounted for a total of 5.06 lakh hectares of forest area, which is more than 80 percent of the total forest area in the state. The total uncultivable land was the highest in the district of Gaya (3.11 lakh hectares) and the lowest in Sheikhpura (0.15 lakh hectares) in 2017-18. The districts of Bhojpur, Madhubani, Rohtas and Supaul have less than 2 percent of their land as current fallows during 2017-18. Sheohar, Araria, Madhubani and Sitamarhi constituted nearly 29.6 percent of the total uncultivated land (excluding fallow) during 2017-18. Thus, considerable variations exist across districts in the pattern of land use for agricultural and non-agricultural purposes in Bihar. While some districts have considerable areas of arable land and water resources, other districts are devoid of the same. The varying agro-ecological conditions, climatic factors, and soil quality are contributing factors to deciding the pattern of land use in Bihar.

Landholdings in Bihar

More than 85 percent of the population live in rural areas in Bihar, as per Census 2011, and their most important source of livelihood is their own landholdings. However, there is growing evidence indicating very small size of landholdings in India, and Bihar is no exception to this scenario. The details on size-wise distribution of landholdings as per Agriculture Census for years 2010-11 and 2015-16 are presented in Table 3.4.

Table 3.4 : Class-wise Distribution of Landholdings (2010-11 and 2015-16)

Size Class	Number of Operational Holdings ('000)			Area of Operational Holdings ('000 hectares)			Average Size of Operational Holdings (Hectares)	
	2015-16	2010-11	Percentage Change	2015-16	2010-11	Percentage Change	2015-16	2010-11
Marginal	14971	14744	1.5	3728	3669	1.6	0.25	0.25
Small	944	948	-0.4	1178	1186	-0.6	1.25	1.25
Semi-Medium	414	415	-0.2	1076	1073	0.3	2.60	2.59
Medium	81	81	-0.1	431	415	3.8	5.29	5.09
Large	3	3	-1.3	45	45	-1.1	14.48	14.45
All	16413	16191	1.4	6457	6388	-1.1	0.39	0.39

Note : Percentage variation is based on absolute figures
Source : Agriculture Census, 2015-16

The total number of operational holdings in Bihar increased from 16.19 million in 2010-11 to 16.41 million in 2015-16, an increase of 1.4 percent. The small and marginal landholdings which are less than two hectares, account for nearly 97 percent of the landholdings in Bihar, operating about 76 percent of the total area of operational holdings in the state during 2015-16. The marginal landholdings have shown an increase of 1.5 percent between 2010-11 and 2015-16. About 3.0 percent of the households have semi-medium and medium size landholdings, operating an area of 1507 thousand hectares, accounting for 23.3 percent of the total area. The average size of landholdings in Bihar during 2015-16 is 0.39 hectares and has not changed over the previous census period 2010-11.

The gender-wise distribution of landholdings across all size groups in Bihar for the year 2015-16 is given in Table 3.5. The average size of landholdings stood at 0.39 hectares for both males and females. Interestingly, the average size of landholding for marginal, semi-medium and large size class was higher for females than for males.

Table 3.5 : Gender-wise Distribution of Landholdings (2015-16)

Gender/ Size class	Number of Operational Holdings ('000)			Area of Operational Holdings ('000 hectares)			Average Size per Holding (hectares)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Marginal	12835	2136	14971	3165	563	3728	0.25	0.26	0.25
Small	821	123	944	1024	154	1178	1.25	1.25	1.25
Semi-Medium	360	54	414	933	143	1076	2.59	2.62	2.60
Medium	71	10	81	379	52	431	5.30	5.15	5.29
Large	3	0	3	35	10	45	13.59	14.14	14.48
All	14090	2323	16413	5537	920	6457	0.39	0.39	0.39

Source : Agriculture Census, 2015-16

The total operated area in Bihar was higher for males at 5.54 million hectares, while it was 0.92 million hectares for females across all class groups. The highest number of operational holdings among males belonged to the marginal size class with 12.84 million holdings, followed by medium (0.93 million). Among females, marginal size constituted the highest number of holdings (2.1 million), operating an area of 0.82 million hectares. The large size land holdings among females (0.14 million) was operating in an area of 0.05 million hectares. Clearly, the data reveals that only 14.2 percent of the total land holdings are owned by females in Bihar, suggesting gender bias in land rights in Bihar.

3.3 Production Trends of Crop and Horticulture

The rich Gangetic plains, fertile alluvial soil, and abundant water resources provide impetus for a diversified farming system in the state, producing both food and non-food crops. The main crops such as rice, wheat, and maize, along with vegetables and fruits are cultivated across the three distinct agricultural seasons of Kharif (June-September), Rabi (October-March) and Zaid (April-June). The agricultural production in the state is largely dependent on south-west monsoon. The expansion of irrigation facilities has played a crucial role in diversifying agricultural output through adoption of HYV seeds, chemical fertilizers, pesticides and modern machinery.

Crop Sector

The cropping pattern in the state is largely determined by biophysical and climatic factors, irrigation, technological adoption and socio-economic capability of the farmers. The pattern of land use and cropping system have implications not only for food and nutritional security, but also for environmental sustainability. The agro-climatic and topographical factors in Bihar have led to cultivation of cereals, pulses, oilseeds, fibre, and cash crops. Table 3.6 presents the cropping pattern in the state during 2014-15 to 2018-19. Cereals dominate the cropping pattern in the state, occupying more than 86 percent of the gross cropped area. Within cereals, rice and wheat together contribute more than 70 percent of the total gross cropped area.

Table 3.6 : Cropping Pattern (2014-15 to 2018-19)

(in percentage)

Crop	2014-15	2015-16	2016-17	2017-18	2018-19
Foodgrains	93.23	93.26	91.63	93.72	94.04
Cereals	86.15	86.19	84.88	86.94	87.10
Pulses	7.09	7.07	6.76	6.77	6.94
Oilseeds	1.63	1.70	1.49	1.46	1.46
Fibre Crops	1.57	1.58	3.59	1.50	1.24
Sugarcane	3.56	3.46	3.28	3.33	3.26
Total Area	100	100	100	100	100

Source : Directorate of Economics and Statistics, GoB

During the last four years, the area under pulses in gross cropped area has been declining, though there has been a revival in 2018-19. The decline in acreage under pulses and their rising prices has

welfare implications for the poor people in the state. Both oilseeds and fibre crops have seen a steady decline in their share in gross cropped area in the last five years. The large share of foodgrains in the total gross cropped area at 94.0 percent in 2018-19 is indicative of the subsistence nature of agriculture in the state. As an important cash crop, sugarcane occupies 3.3 percent of the gross cropped area in 2017-18. Since the crop production is mainly dependent on monsoon, stepping up irrigation facilities and other infrastructure can go a long way in bringing more land under cultivation in Bihar.

Trends in Production and Productivity

The trends in production and productivity levels of most important crops during the period 2014-15 to 2018-19 are given in Tables 3.7 and 3.8 respectively. The compound annual growth rate for the five-year period is given in the last column of the tables. The total foodgrain production in Bihar stood at 163.12 lakh tonnes in 2018-19, compared to 147.50 lakh tonnes in 2014-15, recording a growth rate of 4.14 percent. In meeting the growing demand for food, cereals play an important role.

As a traditional foodgrain economy, the major food crops grown in Bihar include rice, wheat, maize and pulses. The production of cereals recorded an increase from 143.21 lakh tonnes in 2017-18 to 158.58 lakh tonnes in 2018-19, an increase of 4.21 percent. A large part of this increase was due to its higher productivity, which grew from 2328 kg per hectare in 2014-15 to 2636 kg per hectare in 2018-19, registering a growth of 4.31 percent. Also, the surge in wheat and maize crop impacted cereal growth. The production of wheat increased from a modest quantum of 35.70 lakh tonnes in 2014-15 to about 64.66 lakh tonnes in 2018-19. For maize, the production increased from 24.79 lakh tonnes to 31.94 lakh tonnes during the same period. Though the area under maize has steadily increased in Bihar, there are considerable fluctuations in yield leading to instability in production. With respect to rice also, there has been inconsistency in its production and productivity during the last five years. The production of rice declined from 82.42 lakh tonnes in 2014-15 to 61.56 lakh tonnes in 2018-19, and its productivity declined by 3.61 percent from 2525 kg per hectare in 2014-15 to 1948 kg per hectare in 2018-19. The falling productivity of rice could be attributed to inadequate availability of water for cultivation, because of droughts, deficient rain and floods in certain districts, along with rising input costs. The State Government has made significant efforts through promotion of Zero Tillage methods and System of Rice Intensification

technique to increase rice production. To enhance the productivity of cereals, the State Government is making efforts through modernization of farms, technological adoption, investment in irrigation infrastructure and abating pest attack.

The production of pulses stood at 4.53 lakh tonnes in 2018-19, growing at a rate of 1.89 percent per annum during 2014-15 to 2018-19. Much of this increase was due to growth in Rabi pulses, mainly contributed by lentil (36.5 percent), summer moong (26.3 percent) and gram (16.0 percent). The production of Rabi pulses grew at a rate of 2.71 percent, with an average productivity of 897 kg per hectare over the five-year period. In case of kharif pulses, there was an increase in production from 22.01 lakh tonnes in 2017-18 to 23.22 lakh tonnes in 2018-19; while its productivity stood at an average of 843.2 kg per hectare during the same period. To streamline the pulse production in the state, the State Government has undertaken various initiatives to minimize pest infestation, increase yield, and enhance price realization to the farmers.

Though the production of total oilseeds declined marginally from 1.27 lakh tonnes in 2014-15 to 1.25 lakh tonnes in 2018-19, groundnut and mustard showed higher production levels in 2018-19, compared to 2014-15, recording an increase of 9.7 percent and 2.7 percent respectively. The productivity of oilseeds increased from 1093 kg per hectare in 2014-15 to 1247 kg per hectare in 2018-19, recording a growth of 4.0 percent per annum. Except linseed, groundnut, and sunflower, all other oilseeds registered growth in their productivity levels. Despite being sensitive to climate, mustard/rapeseed registered the highest growth in productivity, growing at a rate of 5.0 percent per annum during 2014-15 to 2018-19. This was possible due to improvement in seed quality and irrigation facilities. As regards fibre crops (jute and mesta), there was a drop in production during the last five years, due to decline in both area and productivity.

Thus, assessing the trends in production and productivity of important crops in Bihar, it emerges that there is scope for increasing the yield for foodgrains, in both rainfed and irrigated areas of the state. Growth in production in crop sector in Bihar owes a great deal to expansion in productivity, rather than increases in area, since the scope for any additional land for cultivation is very limited in the state. Growing population has accentuated the need to step up production in the state to meet the needs of food and nutritional security.

Table 3.7 : Production Levels of Major Crops in Bihar (2014-15 to 2018-19)

('000 tonnes)

Crops	2014-15	2015-16	2016-17	2017-18	2018-19	CAGR (%)
Total Foodgrains	14750.04	14508.03	18560.78	17802.78	16311.54	4.14
Total Cereals	14321.11	14087.25	18099.11	17348.61	15858.11	4.21
Total Rice	8241.62	6802.22	8238.77	8093.16	6155.53	-4.02
Autumn Rice	1010.34	725.21	949.37	903.29	615.67	-7.42
Aghani Rice	7049.73	5876.03	7065.07	7046.04	5403.58	-3.44
Summer Rice	181.56	200.98	224.33	143.83	136.28	-8.68
Wheat	3570.21	4736.45	5985.84	6104.30	6465.91	15.51
Total Maize	2478.75	2517.10	3845.70	3120.77	3193.91	7.49
Kharif Maize	825.15	692.70	624.30	535.88	464.14	-13.13
Rabi Maize	913.78	1105.14	2131.51	1645.56	2098.44	22.89
Summer Maize	739.82	719.26	1089.89	939.34	631.33	-0.50
Total Coarse Cereals	2509.28	2548.58	3874.50	3151.15	3236.68	7.48
Barley	13.43	13.90	16.29	16.47	283.93	87.24
Jowar	1.55	1.71	1.91	1.45	0.76	-14.70
Bajra	3.73	4.64	4.05	4.97	3.53	-0.47
Ragi	9.84	9.89	3.46	4.18	3.09	-27.22
Small Millets	1.98	1.34	3.10	3.31	6.99	40.88
Total Pulses	428.93	420.78	461.67	454.17	453.43	1.89
Total Kharif Pulses	33.69	28.98	29.30	22.01	23.22	-9.69
Urad	14.36	12.05	11.49	7.06	7.31	-17.18
Bhadai Moong	9.23	8.34	8.33	5.53	5.32	-14.04
Kulthi	7.96	7.21	7.63	7.98	8.97	3.46
Ghagra	0.43	0.49	0.43	0.43	0.38	-3.71
Other Kharif Pulses	1.71	0.89	1.43	1.02	1.25	-4.79
Total Rabi Pulses	395.24	391.80	332.69	432.17	430.21	2.71
Arhar (Tur)	28.54	37.13	33.17	28.63	31.68	-0.51
Gram	57.49	58.55	66.50	67.18	67.69	4.75
Lentil	140.06	140.44	146.88	147.49	148.03	1.61
Pea	17.31	17.94	16.74	16.94	17.15	-0.76
Khesari	60.06	50.99	55.18	50.31	51.38	-3.20
Summer Moong	90.73	86.02	111.55	120.19	113.16	8.07
Other Rabi Pulses	1.05	0.73	2.35	1.43	1.12	8.34
Total Oilseeds	127.01	126.52	125.86	124.24	124.94	-0.51
Castor seed	0.09	0.04	0.07	0.02	0.08	-8.87
Safflower (Kusum)	0.08	0.09	0.09	0.08	0.07	-3.78
Sesame	2.56	2.39	1.78	1.38	1.41	-15.99
Sunflower	16.64	16.20	14.69	13.38	10.36	-10.76
Mustard/Rapeseed	92.89	94.39	97.68	98.49	103.95	2.71
Linseed	14.16	12.91	10.56	10.31	8.20	-12.34
Groundnut	0.59	0.50	0.99	0.58	0.87	9.69
Total Fibre Crops	1637.12	1630.60	1571.00	1280.00	1085.00	-10.10
Jute	1418.71	1308.60	1356.00	1110.00	929.00	-9.68
Mesta	218.41	322.00	215.00	170.00	156.00	-12.29
Sugarcane	21117.43	18175.59	18239.90	17610.12	20116.28	-1.28

Note : (a) CAGR (%) is calculated for 5 years (2014-15 to 2018-19)

(b) Quantities of Jute and Mesta are in bales

Source : Directorate of Economics and Statistics, GoB

Table 3.8 : Productivity Levels of Major Crops (2014-15 to 2018-19)

Crops	(Kg/Ha)					CAGR (%)
	2014-15	2015-16	2016-17	2017-18	2018-19	
Total Cereals	2328	2320	2919	2839	2636	4.61
Total Rice	2525	2104	2467	2447	1948	-3.61
Autumn Rice	1739	1321	1705	1728	1382	-1.89
Aghani Rice	2711	2258	2618	2594	2036	-4.25
Summer Rice	2207	2472	2660	2119	2256	-1.10
Wheat	1657	2244	2843	2905	2998	15.54
Total Maize	3508	3571	5335	4607	4771	9.09
Kharif Maize	2974	2559	2586	2400	2078	-7.51
Rabi Maize	3630	4421	7482	6138	7432	19.26
Summer Maize	4171	3903	5601	5047	3854	0.99
Total Coarse Cereals	3425	3491	5194	4488	4625	8.89
Barley	1109	1304	1505	1587	1990	14.63
Jowar	1068	1063	1065	1066	1066	-0.01
Bajra	1134	1133	1135	1134	1134	0.01
Ragi	1474	1429	723	994	1071	-9.53
Small Millets	757	756	379	752	751	-0.21
Total Pulses	848	844	936	954	946	3.47
Total Kharif Pulses	892	821	855	855	793	-1.93
Urad	913	883	885	890	894	-0.34
Bhadai Moong	838	683	782	743	581	-6.28
Kulthi	957	929	919	929	904	-1.13
Other Kharif Pulses	757	753	753	754	754	-0.07
Total Rabi Pulses	844	846	879	960	956	3.83
Arhar (Tur)	1438	1577	1581	1548	1852	5.00
Gram	958	986	1120	1154	1199	-33.06
Lentil	916	932	1005	1068	1001	3.19
Pea	1010	1053	1020	1031	1036	0.30
Khesari	990	934	1059	1057	1018	1.81
Summer Moong	579	548	690	707	705	6.70
Other Rabi Pulses	1000	1010	1005	1005	1004	0.03
Total Oilseeds	1093	1059	1155	1208	1247	4.03
Castor seed	958	953	961	1000	965	0.63
Safflower (Kusum)	804	802	813	818	811	0.37
Sesame	874	868	877	877	873	0.08
Sunflower	1429	1421	1428	1429	1417	-0.11
Mustard & Rapeseed	1100	1053	1180	1245	1290	4.98
Linseed	861	859	833	851	849	-0.37
Groundnut	1023	1018	1015	1019	1020	-0.05
Jute	2694	2508	2671	2393	2367	-3.01
Mesta	2402	3515	2369	1479	1935	-12.17
Sugarcane	67040	68970	69060	65480	89181	5.33

Note : CAGR (%) is calculated for 5 years (2014-15 to 2018-19)

Source : Directorate of Economics and Statistics

District-wise Production and Productivity Levels

The state support in investing in irrigation, infrastructures, and technology has yielded impressive growth rates in production and yield of cereals, coarse cereals, and pulses in Bihar, thereby strengthening the food economy. However, the district-wise trends in production and productivity have displayed varied performance. The district-wise trends in area, production and productivity for rice, wheat, maize, and pulses during the years 2017-18 and 2018-19 are presented in Tables A3.2, A3.3, A3.4 and A3.5, respectively, in the Statistical Appendix. The shares in total area and production, and productivity rankings for each district are given in parentheses in respective columns. The Table 3.9 presents the classification of districts for four major crops — rice, wheat, maize, and pulses, based on the data for the year 2018-19.

Rice

As one of the widely cultivated food crops in Bihar, rice is crucial for ensuring both livelihoods and food security of the rural population. Rice is one of the most water intensive crops, and persistent drought or deficient rain can impact its yield. Also, in flood-prone areas, poor drainage and water logging can shrink its production. In 2017-18, the highest productivity of rice was recorded in Rohtas (4105 kg per hectare), while the lowest was observed in the district of Siwan (709 kg per hectare). The top three districts with respect to rice production are — Rohtas (7.92 lakh tonnes), Aurangabad (5.42 lakh tonnes) and Kaimur (3.54 lakh tonnes). The adoption of the System of Rice Intensification (SRI) has augmented productivity of rice with higher water efficiency and greater resistance to environmental stresses.

Wheat

Wheat is one of the most important rabi crop in Bihar, sown during November and harvested between March and April. The three leading districts in terms of production level are — Rohtas (5.18 lakh tonnes), Muzaffarpur (3.36 lakh tonnes) and Sitamarhi (3.21 lakh tonnes) in 2017-18. The top three districts in terms of wheat productivity are — Madhepura (3805 kg per hectare), Begusarai (3775 kg per hectare) and Rohtas (3680 kg per hectare). The districts of Sheikhpura (2200 kg per hectare), Jamui (2113 kg per hectare) and Madhubani (1993 kg per hectare) have registered low productivity levels. Investing in mechanization of farms, early sowing and increasing seed replacement rates can accentuate wheat productivity in the state.

Maize

Maize is an important staple crop in Bihar and is largely grown under different agro-ecological zones across all the districts. It is the most suitable food and fodder crop, and increasing its

production is, therefore, useful to meet the growing demand for diversified uses such as human consumption, animal feed (for poultry and livestock), and other industrial uses. The fertile Gangetic plains, and use of hybrid seeds have enabled achieving higher yield in maize, though there are large scale fluctuations across the districts. While Purnea (9188 kg per hectare) registered the highest productivity in maize during 2017-18, the lowest yield was observed in Bhojpur (1378 kg per hectare). The top three performing districts with respect to maize production are — Katihar (4.76 lakh tonnes), Purnea (3.44 lakh tonnes) and Araria (3.28 lakh tonnes).

Pulses

Due to the increasing awareness about significant nutritional benefits, there has been a soaring demand for pulses in Bihar, especially among the vegetarians. Not only does it form an important component of nutrition, it is also crucial for achieving ecological sustainability owing to their key role in improving soil fertility. In Bihar, pulses are largely grown under rainfed conditions and, therefore, are prone to high fluctuations in yield. In 2017-18, the productivity of pulses was the highest in the district of Buxar (1374 kg per hectare). The districts such as Supaul (567 kg per hectare), Samastipur (496 kg per hectare) and Kishanganj (492 kg per hectare) registered low productivity levels. The three leading districts in terms of production level are — Patna (0.68 lakh tonnes), Aurangabad (0.31 lakh tonnes) and Nalanda (0.28 lakh tonnes).

Table 3.9 : Classification of Districts based on Production/ Productivity for Major Crops (2018-19)

Crops	Production/ Productivity	Low	High
Rice	Production ('000 tonnes)	Bhagalpur (28.68) Begusarai (27.48) Khagaria (27.25)	Rohtas (792.14) Aurangabad (542.10) Kaimur (354.09)
	Productivity (kg/hectare)	Bhagalpur (874) Gopalganj (842) Siwan (709)	Rohtas (4105) Arwal (3113) Aurangabad (3086)
Wheat	Production ('000 tonnes)	Sheikhpura (46.70) Sheohar (43.97) Munger (38.30)	Rohtas (517.85) Muzaffarpur (335.65) Sitamarhi (321.41)
	Productivity (kg/hectare)	Sheikhpura (2200) Jamui (2113) Madhubani (1993)	Madhepura (3805) Begusarai (3775) Rohtas (3680)
Maize	Production ('000 tonnes)	Arwal (0.44) Kaimur (0.16) Aurangabad (0.13)	Katihar (475.83) Purnea (344.26) Araria (327.78)
	Productivity (kg/hectare)	Sheikhpura (1618) Aurangabad (1420) Bhojpur (1378)	Purnea (9188) Araria (7396) Supaul (6928)
Pulses	Production ('000 tonnes)	Sheohar (1.77) Gopalganj (1.70) Purnea (1.16)	Patna (67.89) Aurangabad (31.39) Nalanda (28)
	Productivity (kg/hectare)	Supaul (567) Samastipur (496) Kishanganj (492)	Buxar (1374) Patna (1362) East Champaran (1333)

Source : Compilation based on data from Directorate of Economics and Statistics, GoB

Sugarcane

Sugarcane is one of the most important commercial crops of Bihar and provides raw materials to one of the largest agro-based industries. As a labour-intensive crop, sugarcane provides employment to many workers in rural Bihar. As per the data given in Table A3.6 (Statistical Appendix), sugarcane production stood at 182.97 lakh tonnes. The productivity of sugarcane crop decreased from 69.06 ton per hectare in 2017-18 to 60.15 ton per hectare in 2018-19. A district-wise analysis reveals that there exists considerable variation in productivity of sugarcane. In 2018-19, the highest productivity was observed in Patna (84.77 ton per hectare), while the lowest was in Bhagalpur district (46.14 ton per hectare). The district of West Champaran accounted for nearly 58.3 percent of the total sugarcane production in the state, produced in an area of 1.72 lakh hectares, which is about 56.6 percent of the total area under sugarcane in 2018-19. About 13 districts had productivity higher than that of the state average of 60,150 kg per hectare.

A major incentive scheme for sugarcane growers is the Mukhyamantri Ganna Vikas Yojana, aimed at distributing subsidized certified seeds to farmer beneficiaries selected through the Panchayati Raj Institutions. The scheme provides subsidy of Rs. 160 per quintal (for SC/ST Rs. 200 per quintal) to farmers on purchase of certified sugarcane seed of 16 selected varieties for a maximum of 2.5 acres. During 2018-19, the scheme has benefitted 8468 beneficiaries, covering an area of 7023 hectares. Clearly, there is scope for improving sugarcane yield in Bihar. Despite adoption of technology, investments in irrigation, and incentives from the State Government, the fluctuations in yield and production of sugarcane are a cause of concern.

Horticulture

Horticulture has emerged as one of the most important agricultural enterprises in Bihar in the last two decades, as it offers a wide range of opportunities for farmers to diversify their cropping pattern to include fruits, vegetables, flowers, spices, plantation crops, medicinal and aromatic plants. The increasing diversification provides opportunities for absorption of labour and earning remunerative returns to the farmers. The horticultural products form an important component of food and nutritional security in Bihar. To meet the growing demand for affordable and high-quality fruits in local, national, and international markets, this sector is experiencing substantial competition. Since horticultural crops are highly perishable and seasonal in nature, they require adequate post-harvest infrastructure. The State Government is promoting horticulture sector in a big way in Bihar to help the farmers.

Fruits

The trends in area and production of fruits in Bihar for the period 2016-17 to 2018-19 are presented in Table 3.10. The total production of fruits in Bihar increased from 41.05 lakh tonnes in 2016-17

to 42.29 lakh tonnes in 2018-19, registering an annual growth rate of 4.9 percent. Except pineapple, all other fruits registered growth in production in the last three years. The state is performing well in production of litchi, amounting to 3.07 lakh tonnes cultivated in an area of 0.36 lakh hectares in 2018-19. This was possible due to increase in both its acreage and productivity. Substantial increases in production was observed for banana (2.1 percent), papaya (4.1 percent), mango (3.5 percent), guava (8.2 percent), watermelon (10.7 percent), and muskmelon (11.8 percent) during 2016-17 to 2018-19.

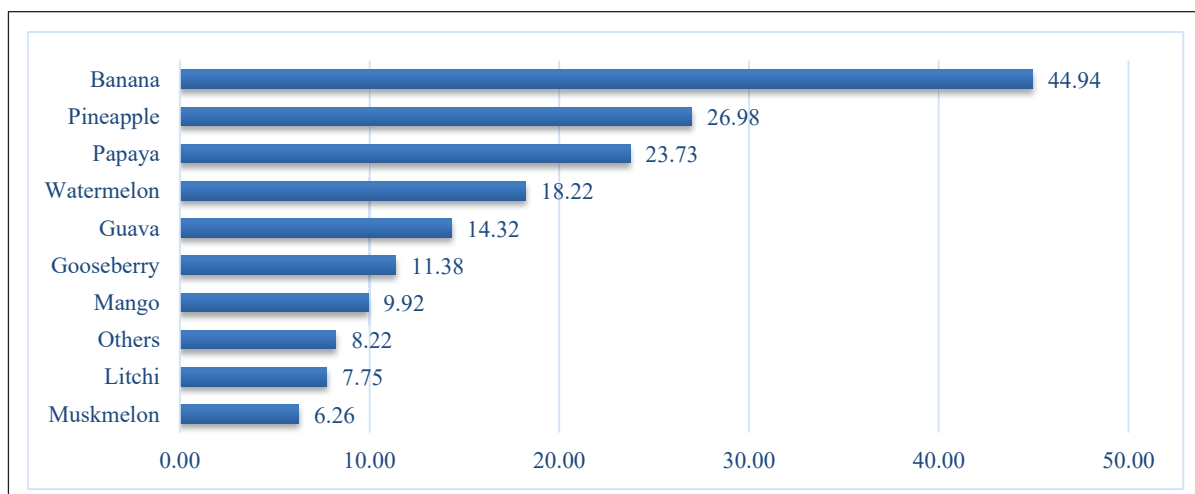
Table 3.10 : Area and Production of Fruits in Bihar (2016-17 to 2018-19)

(Area in '000 hectares/ production in '000 metric tonnes)

Year	2016-17		2017-18		2018-19		CAGR (%)	
	Area	Production	Area	Production	Area	Production	Area	Production
Mango	149.96	1472.38	153.45	1533.64	158.50	1577.43	2.81	3.51
Guava	29.38	370.37	27.613	427.6	29.15	433.44	-0.39	8.18
Litchi	32.2	198.6	33.26	282.27	35.81	307.58	5.46	24.45
Banana	35.1	1527.8	31.06	1396.39	34.34	1591.58	-1.09	2.07
Pineapple	4.3	116.6	4.26	115.13	4.17	111.83	-1.52	-2.07
Papaya	1.6	43.9	1.9	42.72	2.24	47.58	18.32	4.11
Gooseberry	0.9	14.2	1.59	14.917	1.78	15.97	40.63	6.05
Watermelon	1.4	29.7	1.48	23.73	2.09	36.37	22.18	10.66
Muskmelon	1.7	12.9	1.81	10.2	2.90	16.14	30.61	11.86
Others	32.4	311	44.36	360.67	47.70	373.87	21.34	9.64
Total	288.9	4097.5	300.78	4207.26	318.68	4511.79	5.03	4.93

Source : Directorate of Horticulture, GoB

Chart 3.3 : Productivity of Fruits (Tonne/Ha) in Bihar (Triennium 2016-19)



Source : Directorate of Horticulture, GoB

Chart 3.3 gives a picture of average productivity of fruits in Bihar during the triennium 2016-19. The productivity was the highest for banana, averaging around 44.94 tonnes per hectare and the lowest productivity was observed in the case of muskmelon at 6.26 tonnes per hectare. The productivity of litchi in the last three years averaged to 7.75 tonnes per hectare. The district-wise trends in area and production of fruits such as mango, litchi, bananas, and guava are given in Table A 3.7 (Statistical Appendix) for the period 2017-18 and 2018-19. The top three mango-producing districts are Darbhanga, East Champaran, and Muzaffarpur, together contributed nearly 24.8 percent of the total mango production in the state during 2018-19. These three districts together accounted for 23.2 percent of the total area under mango in Bihar. The leading producer of litchi was Muzaffarpur at 1.48 lakh tonnes, producing 48 percent of the total litchi production. In case of banana, Katihar, Vaishali and Muzaffarpur together produced nearly 33 percent of the total banana in the state. The *shahi* litchi variety and *malda* of mango from Bihar are widely known for their flavour and taste. The investment in facilities which enhance the shelf life of fruits can go a long way in promoting both fruit production in Bihar and food processing industries.

Vegetables

As a high-income generating sector, the production of vegetables has received special impetus in Bihar since the implementation of the National Horticulture Mission in 2005. The State Government is providing substantial support through investments in technology, post-harvest management and processing of vegetables in Bihar. Further, the climate, alluvial soil and water resources are conducive to produce vegetables at low cost. The trends in area and production level of 16 important vegetables in Bihar are presented in Table 3.11 for the years 2016-17 to 2018-19. In 2018-19, a total of 166.03 lakh tonnes of vegetables was produced in an area of 8.57 lakh hectares. During 2016-17 to 2018-19, the total area under the vegetables increased from about 8.28 lakh hectares to 8.57 lakh hectares, at an annual growth rate of about 1.99 percent. Correspondingly, the total vegetable production increased from 143.62 lakh tonnes to 166.03 lakh tonnes, recording an annual growth rate of 7.52 percent. The growth in vegetable production is primarily led by growth in productivity at the rate of 18.81 percent. On an average, the area under total vegetables cultivation grew at the rate of 1.99 percent per annum during the last three years. Over the period 2016-17 to 2018-19, potato accounted for nearly half (49.11 percent) of the total vegetable production in an area of 3.20 lakh hectares. Except cucumber, radish, tomato, and cabbage, all other vegetables registered a positive annual growth rate during 2016-17 to 2018-19. The vegetables such as tomato, cabbage, cucumber, and radish registered a decline in production during 2016-17 to 2018-19. The highest growth in production was observed for carrots (63.82 percent); in terms of area, the highest growth was for sweet potato (39.04 percent) during the three-year period.

Table 3.11 : Area and Production of Vegetables in Bihar (2016-17 to 2018-19)

(Area in '000 hectares/ Production in '000 tonnes)

Year	Area/ Production	Potato	Onion	Tomato	Cauliflower	Cabbage	Brinjal
2016-17	Area	320.48	54.06	46.21	66.11	41.18	57.88
	Production	6377.71	1248.96	1009.6	1003.74	725.9	1141.2
2017-18	Area	304.78	53.77	45.08	62.03	37.94	58.21
	Production	7740.73	1267.18	941.56	935.55	673.43	1241.71
2018-19	Area	321.88	56.5	51.44	67.9	41.26	61.36
	Production	8153.91	1311.45	964.45	1035.69	721.37	1319.87
CAGR (%)	Area	0.22	2.23	5.51	1.34	0.10	2.96
	Production	13.07	2.47	-2.26	1.58	-0.31	7.54
Year	Area/ Production	Lady's finger	Chilli	Bottlegourd	Cucumber	Pointed gourd	Bittergourd
2016-17	Area	58	45.24	40.35	3.6	6.83	9.71
	Production	765.95	476.84	634.73	67	72.13	67.32
2017-18	Area	57.41	42.9	41.43	3.89	7.11	10
	Production	787.77	451.19	699.68	25.35	77.77	83.44
2018-19	Area	61.14	47.05	43.28	4.38	8.21	11.18
	Production	841.6	488.66	679.83	30.19	88.92	94.86
CAGR (%)	Area	2.67	1.98	3.57	10.30	9.64	7.30
	Production	4.82	1.23	3.49	-32.87	11.03	18.71
Year	Area/ Production	Pea	Radish	Carrot	Sweet Potato	Others	Total
2016-17	Area	10.54	24.35	9.15	0.9	29.18	823.77
	Production	64.24	246.99	53.73	8.4	397.79	14362.23
2017-18	Area	9.65	23.45	14	1.04	30.94	803.63
	Production	57.76	233.95	147.44	8.5	399.25	15772.26
2018-19	Area	10.87	23.65	12.93	1.74	32.1	856.87
	Production	65.94	232	144.2	13.38	416.82	16603.14
CAGR (%)	Area	1.55	-1.45	18.87	39.04	4.88	1.99
	Production	1.31	-3.08	63.82	26.21	2.36	7.52

Note : CAGR (%) is calculated for 3 years (2016-17 to 2018-19)

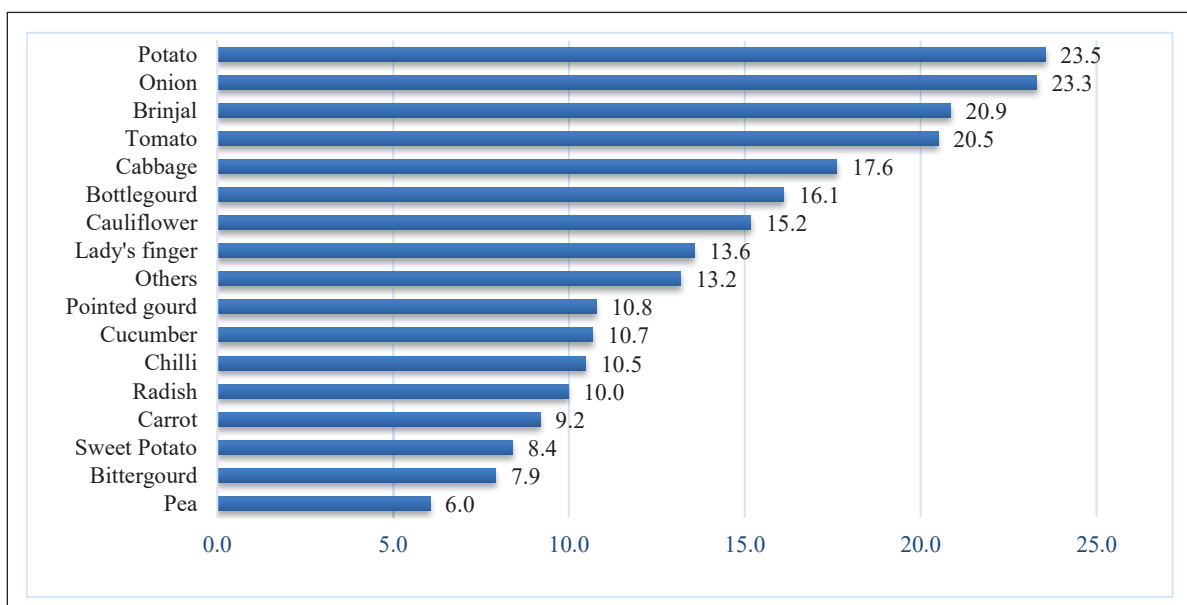
Source : Directorate of Horticulture, GoB

The district-wise area and production of four important vegetables (potato, onion, cauliflower and brinjal) have been presented in Table A 3.8 (Statistical Appendix) for the years 2017-18 and 2018-19. The production level and acreage share of each district are shown in the bracket. During

2018-19, Patna, Nalanda and Vaishali are the highest producing districts of potato. Potato yield was the highest in Vaishali district at 29.2 tonnes per hectare. For onion, the lead districts are Nalanda, Katihar and Muzaffarpur. Similarly, for cauliflower, the lead districts are Vaishali, Nalanda and Muzaffarpur. There is still scope for improvement of vegetable production and productivity.

Chart 3.4 gives a snapshot of the productivity of vegetables in tonnes per hectare in Bihar during the period triennium 2016-19. The yield was the highest in case of potato (23.5 metric tonne per hectare), while it was the lowest for pea (6.0 metric tonne per hectare). Next to potato, the productivity of onion was the second highest at 23.3 metric tonne per hectare.

Chart 3.4 : Productivity of Vegetables (MT/ha) in Bihar (TE 2016-19)



Source : Directorate of Horticulture, GoB

As noted in the Agriculture Roadmap (2017-22), specific focus is now being given by the State Government to organic cultivation, and promotion of cultivation on rooftops. Further, setting up of low-cost cold storage units and cool chain for marketing of fruits and vegetables have resulted in better management of horticulture produce and minimize their wastages. The increasing awareness on adoption of new technology, high yielding varieties, usage of quality planting material, protected farming, micro irrigation methods and banana tissue culture plantlets have enabled growth in this sector in the recent period. Given the negative effects of using chemical pesticides in vegetable cultivation, the State Government is giving priority to promote organic farming in fruits and vegetables and setting up of government nurseries to develop mother plants.

Schemes of the Department of Agriculture, GOB

- The State Government is implementing Agriculture Roadmap since 2008. It has led to laudable achievements in agriculture sector. The Government of India has conferred the Krishi Karman Award to the state on 2nd January 2020, for its achievements in production and productivity of Maize and Wheat.
- Under the Chief Minister Horticulture Mission, there is a provision of grants for promoting roof top horticulture in five cities of the state, including Patna. Out of the total allocated amount of Rs. 4126.31 lakh, an expenditure of Rs. 3569.86 lakh has been incurred under the scheme.
- The Bihar State Organic Mission is being implemented in 12 districts (Patna, Buxar, Bhojpur, Nalanda, Vaishali, Saran, Samastipur, Begusarai, Lakhisarai, Khagaria, Bhagalpur and Munger) with a total approved sum of Rs. 15,588.58 lakh for the period 2019-20 to 2021-22. The main objectives of the scheme is to promote organic farming in the state, protect the environment, soil and water resources from pollution and make farming sustainable. It also aims at increasing the value of produce to ensure better incomes for farmers. Under the Adoption and Certification Programme of organic seeds, the farmers will be provided certification for adoption of organic seeds.
- Prime Minister Kisan Samman Nidhi Yojana is a centrally sponsored scheme, which aims to increase the income of farmers by providing income support of Rs. 6000 per year. This support will be provided to all farmer families in three equal instalments of Rs. 2000 every four months.
- Under the Jal-Jeevan-Hariyali campaign, the State government has recently launched a new scheme of Jalvayu ke Anukul Krishi (Climate Resilient Agriculture) Karykram. In the first phase, the project is implemented in 8 districts, where 40 villages (5 villages per district) will be developed as model climate resilient agriculture village. Based on the experience of this project, the entire state will be covered in the coming years. The project broadly covers two components, firstly, the demonstration of already developed suitable climate resilient and futuristic cropping system (Crop cycle) modules in 8 districts and secondly, Strategic Research for future germplasm, cropping system (crop cycle) and Climate Change. The Climate Resilient Agriculture Programme is implemented by Dr Rajendra Prasad Central Agriculture University, Bihar Agriculture University, ICAR-Research Complex for Eastern Region and CIMMYT-BISA. The State government has sanctioned Rs. 60 crore for the project for five years.

3.4 Animal Husbandry, Fisheries and Dairy Sector

The growing importance of allied sectors such as fisheries, livestock and dairy farming in Bihar is largely due to its role in supporting livelihoods. As labour-intensive sectors, they employ a large segment of population and help the poor rural households in earning supplementary income. Animal food is considered a great source of protein and is, therefore, in high demand in both national and international markets. Livestock and aquaculture together contributed about 7.10 percent of Gross Value Added in agriculture sector in Bihar during 2018-19. Its contribution to GDP in the last three years, i.e. during 2016-17 to 2018-19 stands at Rs. 1.45 lakh crores. The Department of Animal and Fisheries Resources has brought out a Livestock Master Plan (LMP) for the years 2018-19 to 2022-23 to augment production and marketing of milk, meat, eggs, and fish to meet their growing demand. As growing sub-sectors, livestock and fisheries still have substantial potential to develop on a commercial scale in Bihar.

Livestock

Livestock production constitutes an important component of agricultural economy in Bihar for it assists in supply of food and nutrition, enhancement of income and livelihood and diversification of agricultural activities. Table 3.12 presents the livestock population in major states of India as per two Livestock Census years. A comparative analysis of the livestock population across the major states of India reveals that, between 2012 and 2019, livestock population increased in Bihar from 32.9 million to 36.5 million, registering a growth of 10.67 percent. The highest growth in livestock population was recorded in West Bengal (23.32 percent).

Table 3.12 : Livestock Population in Major States of India (2012 and 2019)

States	Population (in million)		Percentage Change
	2012	2019	
Uttar Pradesh	68.7	67.8	-1.35
Rajasthan	57.7	56.8	-1.66
Madhya Pradesh	36.3	40.6	11.81
West Bengal	30.3	37.4	23.32
Bihar	32.9	36.5	10.67
Andhra Pradesh	29.4	34.0	15.79
Maharashtra	32.5	33.0	1.61
Telangana	26.7	32.6	22.21
Karnataka	27.7	29.0	4.70
Gujarat	27.1	26.9	-0.95

Source : Livestock Census (Various Years)

The livestock wealth across different species of animal population in Bihar as per the last four censuses is presented in Table 3.13. As per the latest Livestock Census of 2019, the total livestock population in Bihar increased from 269.57 lakh in 2003 to 364.54 lakh in 2019, registering an increase of 35.23 percent. The milch animals constituted about 63.18 percent of the total livestock population. The population of cattle was 153.11 lakh (42.00 percent) and it was higher than that of buffaloes at 77.20 lakh (21.18 percent) in 2019. The poultry population registered a growth of 18.31 percent, increasing from 139.68 lakh in 2003 to 165.25 lakh in 2019. The substantial increase in buffalo population in the state indicates their adaptability to changing climate and resilience to diseases. Next to cattle, the proportion of goats in total livestock population stood at 35.1 percent (128.21 lakhs). Goat is an extremely popular among small and marginal farmers and plays an important role in poverty-alleviation. The increasing demand for livestock products is on account of their nutritional value. This sector helps the small and marginal farmers by providing alternative source of income, especially in times of decrease in crop income, due to natural disasters.

Table 3.13 : Livestock Wealth (2003, 2007, 2012 and 2019)

(Figures in '000)

Livestock and Poultry	2003	2007	2012	2019
Cattle	10470	12408	12232	15311
Buffalo	5766	6690	7567	7720
Sheep	346	218	232	213
Goats	9606	10167	12154	12821
Pigs	627	632	650	343
Horses and Ponies	115	51	49	32
Others	0	0	55	13
Total Livestock	26957	30167	32939	36454
Total Poultry	13968	11420	12748	16525

Source : Department of Animal Husbandry, GoB

Livestock Services

To improve the productivity of livestock, it is crucial to provide access to good quality services to promote health and breeding of livestock animals. The State Government has laid special focus on delivery of veterinary and preventive care services by systematic implementation of vaccination drives. One of the major objectives of the State Government is to increase the production of livestock, improve the health of milch animals, and increased access to livestock-related services by marginalized communities. The Bihar Livestock Master Plan and the agriculture roadmap outlines the need to increase the quantity and quality of animal health services to minimize diseases. The vaccination campaigns are being conducted as per the calendar and four important vaccinations i.e., HSBQ, F MDCP, Brucellosis and PPR are given without fail since last four years

by the Department under the National Livestock Health and Disease Control Programme to protect against various infectious diseases. Bihar Livestock Development Agency, Patna is the nodal agency to implement the various programmes for livestock development under the Chairmanship of Principal Secretary of the Department.

The progress of livestock services in Bihar over the period 2014-15 to 2018-19 is presented in Table 3.14. Clearly, the number of animals being vaccinated has been increasing in a remarkable pace. Vaccination in livestock increased at the rate of 107 percent from a mere 26.24 lakh in 2014-15 to 555.66 lakh in 2018-19. About 44.08 lakh animals were treated during 2018-19, which is much higher than those treated during 2014-15. Nearly 31.01 lakh animals were covered under artificial insemination in Bihar during 2018-19.

Table 3.14 : Livestock Services in Bihar (2014-15 to 2018-19)

Year	Animals Treated (lakh)	Immunization (lakh)	Artificial Insemination (lakh)
2014-15	32.99	26.24	26.40
2015-16	38.26	163.31	26.31
2016-17	41.03	296.45	26.20
2017-18	44.67	526.72	28.23
2018-19	44.08	555.66	31.01
CAGR (%)	7.62	107.03	4.00

Note : CAGR (%) is calculated for the last 5 years (2014-15 to 2018-19)

Source : Department of Animal Husbandry, GoB

Production of Livestock, Fishery and Dairy Products

The trends in production of livestock and fish products for the period 2014-15 to 2018-19 is presented in Table 3.15. The production of fishery in Bihar increased from 4.79 lakh tonnes in 2014-15 to 6.02 lakh tonnes in 2018-19, representing a compound annual growth of 6.22 percent. Similarly, the milk production in the state has steadily increased from 77.75 lakh tonnes in 2014-15 to 98.18 lakh tonnes in 2018-19, indicating an annual growth rate of 5.92 percent. The fastest growth has been observed in egg production, registering a growth rate of 14.60 percent during the same period. About 176.33 crores of eggs are produced in Bihar presently. Further, owing to the growing popularity, meat production has shown a steady increase from 2.94 lakh tonnes in 2014-15 to 3.64 lakh tonne in 2018-19, recording an annual growth of 5.70 percent. Egg production has increased at the rate of 58.63 percent from 111.17 crore in 2016-17 to 176.34 crore in 2018-19. The tentative figures for 2019-20 are 265 crore eggs annually. With this, the per-capita availability of eggs will jump from 11 in 2016-17 to 25 in 2019-20. The rapid development of fisheries, poultry and dairy products can largely be attributed to the leadership and guidance provided by the Department, the drive and enthusiasm of farmers, technological advancement, better management of animal health and introduction of new schemes and better implementation of these.

Table 3.15 : Livestock and Fish Production in Bihar (2014-15 to 2018-19)

Year	Milk (lakh tonnes)	Egg (crores)	Wool (lakh kgs)	Meat (lakh tonnes)	Fish (lakh tonnes)
2014-15	77.75	98.35	2.78	2.94	4.79
2015-16	82.88	100.21	2.40	3.02	5.07
2016-17	87.10	111.17	2.81	3.26	5.09
2017-18	92.41	121.85	2.98	3.43	5.87
2018-19	98.18	176.33	3.12	3.64	6.02
CAGR (%)	5.92	14.60	4.57	5.70	6.22

Note : CAGR (%) is calculated for the last 5 years (2014-15 to 2018-19)

Source : Department of Animal Husbandry, GoB

Fisheries

Fisheries is one of the most promising sectors in Bihar as it provides livelihood security to many economically poor households. As a booming commercial activity, fisheries play an important role in increasing food and nutritional security, yielding foreign exchange, generating employment and enhancing incomes. Owing to their high protein content, the demand for fish is growing steadily. Also, fish farming in aquatic ecosystems complement crop and livestock farming activities, assisting in conservation of water and recharging groundwater table. Most of the fish farming is developed in ponds which are convenient for rearing of fish seed in the form of fry, fingerlings and earlings. Presently, Bihar is one of the leading inland fish producing states in India, and ranks fourth in Inland Fisheries in the country. The fisheries sector contributed to about 1.6 percent of the state's Gross Value Addition, while it grew at the rate of 6.70 percent per annum during the period 2013-14 to 2018-19. The total fish production in Bihar increased from 4.79 lakh tonnes in 2013-14 to 6.02 lakh tonnes in 2018-19, registering an annual growth rate of 6.22 percent. While it has grown at the rate of 15 percent during 2017-18, the severe drought like conditions in the following year was responsible for lesser growth in 2018-19. The fish production from aquaculture requires adequate supply of quality fish seeds. In order to meet the demand for improved varieties of seeds for fish species, the State Government is distributing seeds on a priority basis. To increase fish production in the state, about 9286.5 lakh fish seeds have been distributed in the state during 2018-19, which was higher by 17.07 percentage points compared to 2016-17. The fish farmers have started exporting fish to the tune of 30000 MT to other neighbouring states and Nepal. This fish which used to come from Andhra Pradesh has reduced substantially.

The district-wise trends in production of fish and distribution of fish seeds during 2016-17 to 2018-19 are given in Table A 3.10 (Statistical Appendix). The leading districts in terms of production of fish during 2018-19 are Madhubani (0.69 lakh tonnes), Darbhanga (0.55 lakh tonnes) and East Champaran (0.51 lakh tonnes). The districts of Madhubani, Darbhanga, East Champaran, Katihar and West Champaran together accounted for nearly 39.4 percent of the total fish production in the

state. The distribution of fish seeds was highest in the district of Darbhanga (1748 lakh), followed by Madhubani (1630 lakh) and the lowest in Nawada (1.2 lakh) during the latest year. The district of Darbhanga, Madhubani and Sitamarhi received nearly 45.1 percent of the total fish seeds distributed in the state during 2018-19.

The State Government is introducing the farmers to all latest technologies and quality fish seeds to increase production in an efficient manner. Besides training programmes, subsidies for development and renovation of ponds, distribution of vehicles for fish marketing, construction of fish seed hatcheries and establishment of fish feed mills are being given high priority in Bihar. In the districts that are prone to drought and face the challenge of fluctuating fish production, the State Government is providing insurance coverage to members of fishermen cooperative societies.

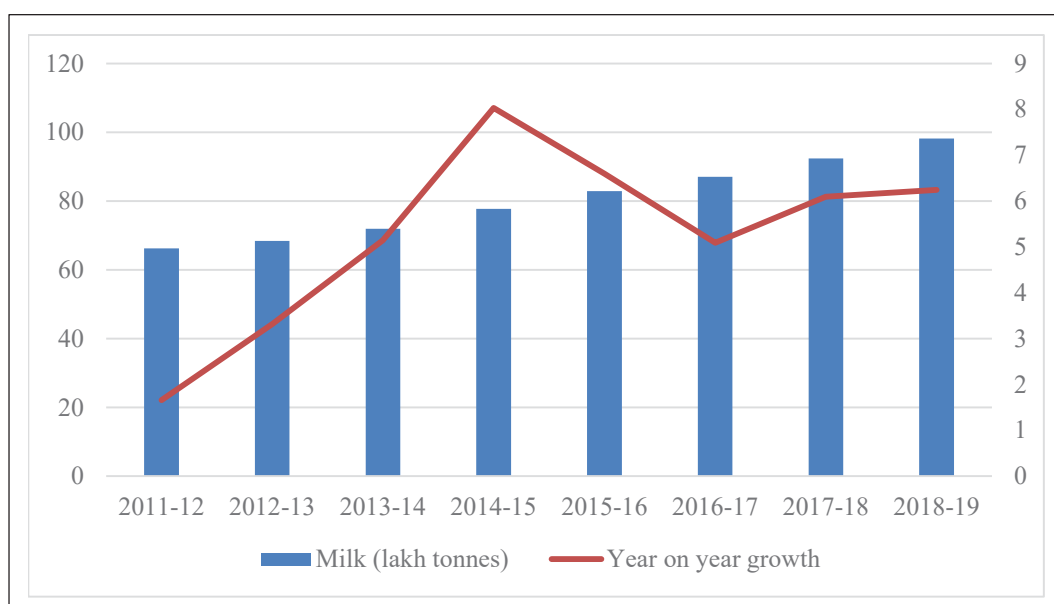
New Initiatives of Animal and Fisheries Resources Department

- The preparation of Bihar Livestock Master Plan with the support of International Livestock Research Institute and Bill and Melinda Gates Foundation (BMGF) was launched by Honourable Chief Minister in January 2019.
- Out of the total 800 Livestock Development Centres sanctioned to deliver artificial insemination services at the doorstep of the farmers, 780 are operational.
- The mass deworming programme which had started in 2017-18 has now been institutionalised.
- For better conservation of indigenous breeds of cattle, Gokul Gram is being established at Dumraon in Buxar district.
- One of the largest frozen semen stations is being constructed with a production capacity of 50 lakh frozen semen straws per annum in Purnea, which would prove to be a boon to the farmers of the state.
- A proposal has been approved by the Government to enable small holder producers and landless farmers to initiate development of small livestock and aquaculture in a commercially viable and sustainable manner. This would enhance their income and food security and strengthen services and value chains. The scheme will receive assistance of International Fund for Agricultural Development (IFAD). A target of upto 1 million poor households with a focus on women farmers has been set up.
- To improve high quality protein availability to children and pregnant/lactating women belonging to the under-privileged group, the Department of Animal Husbandry has tied up with the Directorate of Integrated Child Development Services (ICDS), Department of Social Welfare, Bihar for supply of milk powder and eggs to Anganwadi Centres (AWCs). Eggs produced from the layer poultry farms (established with the grants-in-aid provided by the Department) are being supplied to AWCs.

Dairy Sector

Dairy sector has the potential to enhance the income of rural population, as many small and marginal farmers are dependent on this sector for regular source of income. The performance of dairy co-operatives has been commendable in Bihar in recent years. Figure 3.5 presents the trends in milk production in Bihar during 2011-12 to 2018-19. Clearly, the milk production in the state has increased from 65.17 lakh tonnes in 2011-12 to 98.18 lakh tonnes in 2018-19. The trends in district-wise production of milk in the state for the years 2017-18 and 2018-19 are presented in Tables A 3.11 and A 3.12 (Statistical Appendix). The largest milk production in the state comes from cows, which accounted for 58.59 percent of the total milk production, followed by buffaloes (39.22 percent) and goats (2.19 percent). The districts of Samastipur, Begusarai, and Patna together contribute to nearly 17.05 percent of the total milk produced from cows in 2018-19. In case of goat milk, the leading producers are Araria (33.64 thousand tonnes), East Champaran (11.77 thousand tonnes) and Muzaffarpur (9.4 thousand tonnes), accounting for 25.5 percent of the total milk produced from goats in the state.

Chart 3.5 : Production of Milk in Bihar (2011-12 to 2018-19)



Source : Department of Animal Husbandry and Fisheries Resources, GoB

Poultry

Poultry farming has emerged as one of the most profitable occupations in Bihar due its high production, low initial cost, and low land requirement. As shown in Table 3.15, egg production in the state increased from 98.35 crores in 2014-15 to 176.33 crores in 2018-19, registering an annual growth of 14.60 percent. Since the launch of the Rural Backyard Poultry Scheme in 2014-15, the State Government has been emphasizing on poultry farming and linking with poultry business.

Adequate training, credit and marketing support are being provided to the entrepreneurs. The State Government has been providing grants to Jeevika for distribution of day old chicks and mother units to support the rural households with additional incomes continuously since last five years. Through the programme of low-input variety of chickens, the BPL families are being provided self-employment aimed at increasing production of chicken meat and eggs. Under the Integrated Poultry Development Scheme, grants for infrastructure construction of broiler poultry firms are being given to provide gainful employment opportunities for the youth and increase poultry meat production in the state. Since 2016-17, the State Government has been giving subsidy for the establishment of layer poultry farm of 5000 and 10,000 capacity which has acted as a catalyst for the growth of many layer farms in the state which has resulted in the phenomenal growth of this sector. For increasing the production of goat meat and to provide gainful employment for rural households, 3 goats per family are being distributed for Jeevika self-help group women through the grants given by the Department of Animal and Fisheries resources. An incentive scheme for establishment of goat and buck farm of 21, 42 and 105 animal units have been launched to provide livelihood opportunities for the rural households.

3.5 Agricultural Inputs

Considering the pressure to diversify cultivation, achieve higher yields and attain production targets to meet the growing demands of the population, timely and adequate supply of inputs is crucial. Since the launch of the programme of Bringing Green Revolution to Eastern India (BGREI) in 2010-11, the State Government has given considerable attention on providing farmers access to modern inputs, such as fertilizer, pesticide, seed, tractors, and other mechanized implements to enhance productivity. The use of chemical fertilizers and mechanised equipment have played a positive role in achieving self-sufficiency in food production in the state. Given that many farmers in Bihar are marginal in nature, extending financial support can also act as a catalyst to promote modern technology and inputs. Towards this, the State Government is giving different kinds of subsidies for seeds and agricultural implements, and credit support which cause increased productivity. This section discusses the trends in seed, fertilizer, machinery, energy use and credit in Bihar.

Seed

The timely availability and quality of seeds play a crucial role in enhancing productivity of crops. The merit of hybrid seeds is that they are resilient to climate and yield-enhancing. The Bihar State Seed Corporation has set up infrastructural facilities for seed storage and processing to minimize the dependency on seed imports. The farmers are also being trained on the adoption of certified

seeds. The trends in Seed Replacement Rates (SRR) for major crops during the years 2016-17 to 2018-19 across the kharif and rabi season are presented in Table 3.16. The SRR for kharif paddy which stood at 42.9 percent in 2016-17 decreased to 41.3 percent in 2018-19. However, it is yet to reach the target of 50 percent as per the Agricultural Road Map III. The SRR has been the highest in case of rabi maize, averaging at 86.5 percent in the last three years. The SRR for gram has increased from 3.6 percent in 2016-17 to 35.1 during 2018-19. For other crops, SRR has not reached optimum levels, but with increasing availability of certified seeds, the situation should improve in the coming years. In case of seed for gram, the supply of certified seeds was in excess of the required quantity by 12.41 thousand quintals. However, for other kharif and rabi crops, there was a glitch in the supply of required quantity of certified seeds. Overall, the concerted efforts made by the State Government to stimulate use of certified seeds have yielded gains in both production and productivity.

Table 3.16 : Distribution of Certified Seeds and Seed Replacement (2016-17 to 2018-19)

(Requirement and supply in '000 quintal/SRR in percentage)

Crop	2016-17			2017-18			2018-19		
	Require-ment	Supply	SRR	Require-ment	Supply	SRR	Require-ment	Supply	SRR
Kharif Crops									
Paddy	431.25	317.54	42.9	428.40	319.08	40.74	448.80	320.99	41.3
Maize	90.00	11.96	13.8	81.70	13.05	16.0	82.65	13.42	16.9
Urad	1.78	-	-	-	-	-	-	-	-
Tur	6.02	1.05	8.7	3.24	1.56	11.6	3.60	2.73	21.6
Moong	1.65	0.32	13.5	0.90	-	-	0.90	-	-
Rabi Crops									
Wheat	930.00	465.16	20.3	720.75	674.10	30.8	744.00	753.52	32.9
Maize	112.50	108.78	87.0	73.10	72.68	85.5	87.00	82.70	87.0
Gram	30.36	2.99	3.6	16.56	5.83	9.8	18.40	30.81	35.1
Pea	9.24	0.20	0.8	5.04	0.95	5.1	5.60	0.13	0.5
Masoor	28.38	6.24	7.3	15.48	5.14	9.2	17.60	4.23	5.0
Rapeseed/ Mustard	8.21	4.44	58.6	2.57	1.67	31.6	4.38	4.38	63.5

Source : Department of Agriculture, GoB

Fertilizer

The chemical fertilizers have become an integral input in augmenting crop productivity since the era of Green revolution. A number of scientific and technological innovations have led to the production of nutrient-rich fertilizers, which is crucial to increasing yields across varied crops and agro-climatic zones. The trends in fertilizer consumption in Bihar during 2016-17 to 2018-19 are presented in Table 3.17. There is a distinct pattern in the consumption of fertilizers during the

kharif and rabi seasons. Overall, the consumption of fertilizers has been relatively higher during the rabi season for the last three years. Among all agricultural seasons, the consumption of urea has been the highest at 2183.7 thousand tonnes, accounting for 41.7 percent of the total fertilizer consumption during 2018-19. The consumption of NPK increased from 1510.39 thousand tonnes in 2016-17 to 1731.7 thousand tonnes in 2018-19. The consumption of fertilizers in the Kharif season increased from 1735.76 thousand tonnes in 2016-17 to 2173.49 thousand tonnes in 2018-19. The data clearly shows that the growth rate in fertilizer consumption has reduced during the last three years, although there has been an increase in absolute amount.

Tables A 3.13 and A 3.14 (Statistical Appendix) present the district-wise trends in the consumption of chemical fertilizers in Bihar for the years, 2017-18 and 2018-19. The highest consumption of urea during 2018-19 was observed in Purnea (68.72 thousand tonnes), while the lowest was in Sheohar (5.88 thousand tonnes). Nearly 15.5 percent of the total NPK consumption in the state came from the districts of Purnea, East Champaran and Katihar during 2018-19. The State Government is promoting the use of organic farming and providing field demonstrations for the balance use of chemical fertilizers, which is crucial for agricultural growth in Bihar.

Table 3.17 : Trends in Fertilizer Consumption in Bihar (2016-17 to 2018-19)

(*000 tonnes)

Fertilizer Type	2016-17			2017-18			2018-19		
	Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total
Urea	882.7	1094.8	1977.5	885.6	1154.0	2039.5	883.7	1300.0	2183.7
DAP	148.7	383.1	531.7	250.5	431.8	682.3	312.7	364.8	677.5
SSP	33.4	33.1	66.5	41.1	30.9	72.0	41.9	35.3	77.1
MOP	50.6	179.2	229.8	81.6	163.2	244.9	98.5	124.3	222.8
Ammonium Sulphate	6.0	21.4	27.4	7.5	25.3	32.8	4.5	24.2	28.7
Complex	53.4	187.2	240.6	58.1	204.0	262.2	107.2	204.9	312.1
Sub Total	1174.7	1898.7	3073.5	1324.4	2009.3	3333.6	1448.4	2053.5	3501.9
N	444.0	610.8	1054.8	464.2	649.0	1113.2	481.5	706.2	1187.7
P	85.2	223.6	308.8	134.9	251.4	386.2	176.9	218.7	395.6
K	31.8	115.0	146.7	52.1	109.6	161.8	66.6	81.8	148.4
Total (NPK)	561.0	949.4	1510.4	651.2	1010.0	1661.2	725.1	1006.7	1731.7
Grand Total	1735.8	2848.1	4583.9	1975.6	3019.2	4994.9	2173.5	3060.2	5233.6
Consumption of Fertilizer (kg/ha.)	137.0	205.7	173.4	153.6	216.3	186.5	177.3	222.4	201.0

Source : Department of Agriculture, GoB

Agricultural Machinery

Growing population and increasing trend of diversification require the use of modern technology and implements to improve agricultural productivity. The use of modern agricultural machinery

has the potential to augment efficiency of agricultural operations in different stages, such as sowing, cultivation and harvesting. The State Government is providing subsidy for purchase of power tillers, tractors, sprayers, power weeders and power threshers. The increasing emphasis on Zero-Tillage method is particularly beneficial for small and marginal farmers. A mixed pattern is reflected in the distribution of farm implements through the subsidy scheme for the years 2016-17 to 2018-19, as given in Table 3.18. The number of pumpsets bought through subsidy scheme substantially increased from 6818 in 2016-17 to 11,362 in 2018-19. On the other hand, a decrease in the number of power tillers has been observed during the same period. The decrease in use of manually operated tools and implements is a good sign, providing evidence for increasing mechanization of agriculture in the state. The state government has taken a new initiative to provide subsidy to the extent of 80 percent on machinery used for crop residue management.

The district-wise trends in the distribution of subsidy for purchase of farm implements are given in Tables A 3.15 and 3.16 (Statistical Appendix). Out of the total Zero-Tillage machines bought, the highest number was reported in the district of Kaimur. In 2018-19, the highest number of pumpsets was bought in the districts of Gaya (827), Bhagalpur (656) and Begusarai (578).

Table 3.18 : Number of Farm Implements bought through Subsidy Scheme (2016-17 to 2018-19)

Farm Implements	2016-17	2017-18	2018-19
Combine Harvesters	182	249	230
Zero Tillage	1298	1087	741
Pumpsets	6818	18204	11362
Power Tiller	1431	926	668
Manually operated tools/ implements	23908	13850	5970
Threshers	4044	4789	5304
Total	37681	39105	24275

Source : Department of Agriculture, GoB

Power Use for Agricultural Sector

The availability of adequate and reliable power is crucial to energise pumpsets for irrigation and other machinery. Agriculture is hugely dependent on power for different operations, from sowing to harvesting. Table 3.19 presents the trends in use of power for agricultural purposes in Bihar during the period 2013-14 to 2018-19. During 2013-14, the agricultural sector is estimated to have used 321.79 MU of energy; in 2018-19, it had increased to 726.71 MU. However, as a percentage of total energy consumption, it has gone down from 3.90 percent (2013-14) to 3.62 percent (2018-19). Unmetered and free power can lead to inefficient and misuse of energy. The State Government has renewed existing units of power generation, transmission, and distribution to meet the growing demand of power for productive uses. As outlined in the Agriculture Roadmap III

(2017-22), the State Government is taking steps to ensure continuous supply of electricity by commissioning dedicated feeders for agriculture sector.

Table 3.19 : Trends in Power use for Agricultural Purposes in Bihar (2013-14 to 2018-19)

Years	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Power Consumption (in MU)	321.79	313.21	355.24	393.98	479.84	726.71
Percentage in Total Power Consumption	3.90	2.90	2.59	2.48	2.63	3.62

Source : Bihar State Power Holding Limited

Agricultural Credit

The advent of technology has led to increased demand for modern inputs which require credit support. Credit is an important input to accelerate production and productivity in agriculture. The main channels of disbursement of institutional credit to agriculture are commercial banks, co-operatives, and micro-finance institutions. Timely provision of institutional credit helps meet the expenses of working capital. In 2018-19, the gross flow of agricultural credit stood at Rs. 41,798 crore in Bihar, of which nearly 52.0 percent came from the commercial banks, followed by regional rural banks (41.3 percent) and central-co-operative banks (6.7 percent).

Kisan Credit Card

Since 1998, the Kisan Credit Card scheme is providing timely credit support to farmers through the interest subvention scheme. Table 3.20 presents the trends in achievement of KCC for agriculture during the period 2014-15 to 2018-19. In 2018-19, about 2.53 lakh farmers benefitted from this scheme. Besides this, KCC scheme has been introduced for allied activities in agriculture such as dairy, poultry and fishery, the details of which have been given in Table 3.21. Against the set targets, dairy sector had the highest achievement level of 38.5 percent, followed by poultry (9.8 percent) and fisheries (3.8 percent) in 2018-19.

Table 3.20 : Year-wise Achievement (KCC and procurement) (2014-15 to 2018-19)

(Rs Lakh)

Year	Agriculture Achievement	
	Members	Amount
2014-15	167513	38088.51
2015-16	406574	125759.00
2016-17	384139	182546.00
2017-18	370746	254800.00
2018-19	253060	279986.00

Source : Bihar State Co-operative Bank Limited

Table 3.21 : KCC to Allied Agriculture Activities (2018-19)

(Amount Rs. crore)

Scheme	Target	Sanctioned		Disbursement		Percent Achieved
	Amount	Number	Amount	Number	Amount	
Dairy	3616	230380	1379	230213	1391	38.5
Poultry	1440	9530	141	9569	143	10.00
Fishery	1391	3441	51	3478	53	3.8

Source : State Level Bankers' Committee Report

The demand for financial resources for cropping, farm investments, purchase of inputs and other machinery have been increasing in Bihar. Among the institutional sources of agricultural credit, commercial banks and co-operatives are playing a pioneering role in Bihar. A look at Table 3.22, which presents bank-wise total farm credit in Bihar for the year 2018-19, shows that against the set target, co-operative banks have reached 165.0 percent of the disbursements, followed by regional rural banks (91.4 percent) during the year 2018-19.

Table 3.22 : Bank-wise Total Farm Credit in Bihar (2018-19)

(Amount in Rs crore)

Banks	Target	Sanctioned		Disbursement		Achievement (Percent)
	Amount	Number	Amount	Number	Amount	
Commercial Banks	30837	1884959	19324	1939745	19802	64.2
Co-operative Banks	1697	253060	2800	253060	2800	165.0
RRBs	18896	1589654	18266	1588201	17264	91.4
Small Finance Banks		553642	1804	553642	1802	-
Total	51430	4281015	42194	4334648	41671	81.0

Source : State Level Bankers' Committee Report

The district-wise targets and achievements of Co-operative Banks is given in Table A 3.17 (Statistical Appendix) for the period 2016-17 to 2018-19. It is evident from the table that the targets of co-operative credit supply were comparatively higher in the districts of Begusarai, Khagaria and Madhubani during 2018-19. It is remarkable to note that Katihar was able to supply nearly 90.6 percent of credit against the set target in 2018-19. In districts such as Jehanabad and Arwal, the achievements of co-operative credit supply are far below the set targets.

Subsidy

The subsidies is the assistance given to farmers by the government for provision of inputs at reduced prices. It is a boon to the farmers, especially in incentivising certain crops. The input and diesel subsidies can greatly motivate the farmers to continue their cultivation. The Agriculture

Input Subsidy Scheme provides farmers subsidy twice a year before sowing for adoption of organic vegetables. As per the Pradhan Mantri Krishi Sinchai Yojana (micro irrigation), there is a provision for 55 percent subsidy to marginal farmers (those having landholding of less than one hectare) and 45 percent to those having land holdings over one hectare. The State government is providing additional top up subsidy to encourage use of micro irrigation system in Bihar. After adding additional top up, farmers of state get 90 percent subsidy on drip irrigation and 75 percent subsidy on sprinkler irrigation. In 2018-19, a total of Rs. 229.93 crore has been sanctioned as electricity subsidy by the energy department. The diesel subsidy up to Rs. 263.60 crore have been distributed in Bihar during 2018-19 (Table 3.23). Further, the State Government is providing subsidy of up to 80 percent on the purchase of farm equipment such as happy seeder, straw reaper, straw baler and rotary mulcher for management of crop residue, as part of its efforts to dissuade farmers from burning stubble and promote environmental friendly practices.

Table 3.23 : Distribution of Subsidies for Diesel in Bihar (2010-11 to 2018-19)

(Subsidy Rs. crore)

Years	Diesel
2010-11	76.53
2011-12	4.09
2012-13	140.55
2013-14	175.99
2014-15	97.15
2015-16	195.24
2016-17	65.75
2017-18	49.70
2018-19	263.60

Source : Department of Agriculture, GoB

3.6 Storage and Warehouse

The warehouses in Bihar are being managed by the Bihar State Warehousing Corporation (BSWC) since its establishment in 1957 under the Agricultural Produce Corporation Act, 1956. Providing adequate storage, including sorting, grading units, cold storage units and warehouses are crucial to assist in post-harvest management of produce.

Table 3.24 presents the status of warehouses in Bihar for the period 2010-11 to 2018-19. As on March 2018-19, Bihar has a total warehousing capacity of around 5.21 lakh tonnes to store and preserve foodgrains. The annual capacity available was higher among own warehouses at 4.86

lakh tonnes in 2018-19, compared to the hired warehouses at 0.35 lakh tonnes. The percentage of utilization of hired warehouses was hundred for all the years. The utilization capacity among own warehouses stood at 3.48 lakh metric tonnes, which is about 71.6 percent of the total available capacity during 2018-19.

Table 3.24 : Status of Warehouse in Bihar (2010-11 to 2018-19)

Years	No. of Centres	Annual Capacity Available (in lakh tonnes)			Annual Capacity Utilized (in lakh tonnes)			Percentage of capacity utilization	
		Owned	Hired	Total	Owned	Hired	Total	Owned	Hired
2010-11	33	1.45	0.87	2.31	1.16	0.87	2.02	80.0	100.0
2011-12	30	1.65	0.7	2.35	1.27	0.7	1.97	77.0	100.0
2012-13	28	1.75	0.68	2.43	1.53	0.68	2.21	87.4	100.0
2013-14	30	1.96	0.64	2.6	1.65	0.64	2.29	84.2	100.0
2014-15	29	1.98	0.51	2.49	1.61	0.51	2.12	81.3	100.0
2015-16	30	2.13	0.42	2.55	1.71	0.42	2.12	80.3	100.0
2016-17	35	3.93	0.34	4.27	1.82	0.34	2.17	46.3	100.0
2017-18	38	4.67	0.32	4.99	2.14	0.32	2.47	45.8	100.0
2018-19	41	4.86	0.35	5.21	3.48	0.35	3.82	71.6	100.0

Source : Bihar State Warehousing Corporation (BSWC)

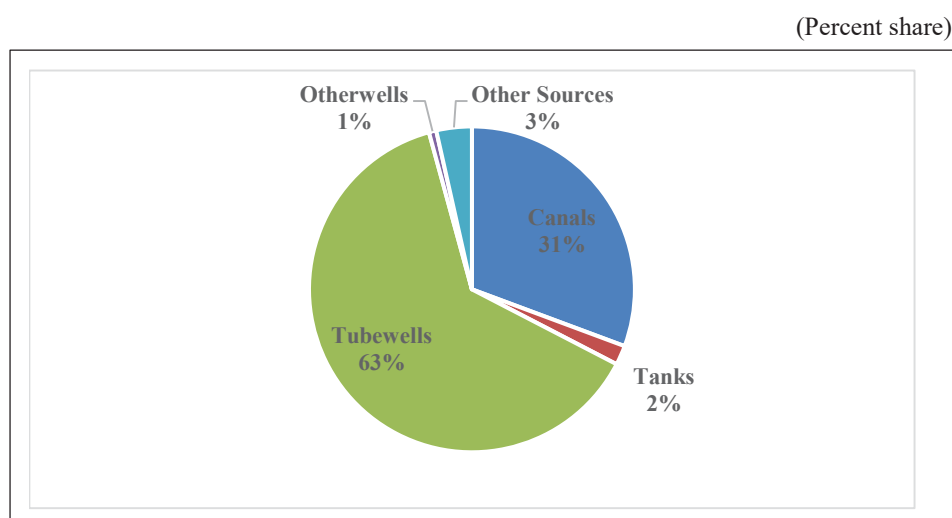
The State Government is making considerable efforts to increase the storage capacity in Bihar through various storage, processing, and marketing schemes. The scope for food processing is huge in Bihar, because of the high production of foodgrains and horticulture crops. Under the Scheme for Integrated Development of Food Processing, about 3 cold storages and 5 dry warehouses have been established. The State Government, in collaboration with COMFED and private companies, is establishing common facility centre for facilitating value addition, packaging, cold storage and warehouse for processing of various agricultural products. Besides BSWC, foodgrain storage capacity is created by agencies such as PACS, SFC and CWC. The Bihar State Seed Corporation will set up a plant to control humidity in its warehouses to maintain the germination quality of seed. To develop horticultural sector, basic infrastructure support is being provided through construction of low-cost storage units, development of cold chain (for marketing of fresh fruit and vegetables), and on-farm collection, sorting, grading and packaging.

3.7 Irrigation

The need for adequate and assured supply of water hardly needs any emphasis in times of adoption of high-yielding varieties, modern technology, fertilizer, and mechanized equipment for increasing production and productivity. In Bihar, the water area constitutes about 3.6 percent of the total geographical area. On an average, the state receives annual rainfall amounting to 1000 mms, bulk of which comes from the south-west monsoon. However, erratic rainfall patterns and recurring droughts leading to scarcity of water for irrigation have affected achieving higher productivity. Therefore, a well-planned irrigation system is needed to assist in stabilizing production, improving yield and cropping intensities. Indeed, in recent years, erratic rainfall patterns, recurrent droughts and over-exploitation of groundwater have emerged as major challenges to achieve water use efficiency in Bihar. Reducing the cost of accessing water for irrigation, especially for small and marginal farmers, can go a long way in improving their welfare. Further, improving water use efficiency is important to balance the environmental costs of groundwater usage.

During 2017-18, Bihar received an annual rainfall of 994.4 mms, out of which 84.9 percent was largely due to the south-west monsoon. However, this is not adequate to water the entire farming activities in the state. Chart 3.6 presents the source-wise Gross Irrigated Area (GIA) in Bihar during 2017-18. The tubewells are the major source of irrigation in the state, irrigating nearly 63.1 percent of the total irrigated area. Next to tubewells, canal water offers about 30.7 percent of the total GIA in the state. The source-wise gross irrigated area across the districts for the period 2017-18 is given in Table A 3.18 (Statistical Appendix). The gross irrigated area was the highest in Rohtas (338.13 thousand hectares), while the lowest was in Sheohar (26.25 thousand hectares) under all sources. The district of Samastipur was well-equipped with 227.69 hectares under tubewell irrigation during 2017-18.

Chart 3.6 : Source-wise Gross Irrigated area in Bihar (2017-18)



Source : Directorate of Economics and Statistics, GoB

The source-wise irrigation (percent of gross irrigated area) for the period 2011-12 to 2017-18 is presented in Table 3.25. The gross area irrigated in the state has increased to 54.14 lakhs during 2017-18, compared to 51.58 lakh hectares in 2011-12, showing an increase of only 4.7 percent. Tubewells are the largest source of irrigation in Bihar, contributing to about 63.1 of the total gross irrigated area in the state, while the second most important source is government canals (30.7 percent). The gross irrigated area under tanks increased from 0.74 lakh hectares in 2011-12 to about 1.05 lakh hectares in 2017-18, registering an annual growth rate of 7.25 percent. The growing share of tubewells in irrigation is of concern, because it leads to over-exploitation of groundwater and fall in water tables.

Table 3.25 : Source-wise Gross Irrigated Area (2011-12 to 2017-18)

(Area in '000 hectares)

Year	Canals	Tanks	Wells			Other Sources	Total
			Tubewells	Other wells	Total wells		
2011-12	1473.48 (28.6)	74.09 (1.4)	3402.64 (66)	28.84 (0.6)	3431.48 (66.5)	178.46 (3.5)	5157.51 (100)
2012-13	1521.73 (28.6)	72.74 (1.4)	3516.83 (66)	29.37 (0.6)	3546.2 (66.6)	186.3 (3.5)	5326.97 (100)
2013-14	1470.88 (28.6)	73.54 (1.4)	3401.36 (66.1)	28.27 (0.5)	3429.63 (66.7)	170.72 (3.3)	5144.77 (100)
2014-15	1490.08 (28.3)	73.7 (1.4)	3497.44 (66.4)	29.58 (0.6)	3527.02 (67)	176.73 (3.4)	5267.52 (100)
2015-16	1466.07 (27.9)	84.57 (1.6)	3482.18 (66.4)	28.60 (0.5)	3510.78 (67)	185.43 (3.5)	5246.85 (100)
2016-17	1628.97 (30.5)	107.27 (2)	3377.1 (63.2)	37.57 (0.7)	3414.67 (63.9)	190.56 (3.6)	5341.46 (100)
2017-18	1660.00 (29.6)	104.88 (1.9)	3418.26 (63.1)	39.63 (0.7)	3457.89 (63.9)	190.74 (3.5)	5413.51 (100)
CAGR (%)	1.37	7.25	-0.16	5.34	-0.10	1.14	0.61

Note : Figures in parentheses indicate percentage share in total GIA

Source : Directorate of Economics and Statistics, GoB

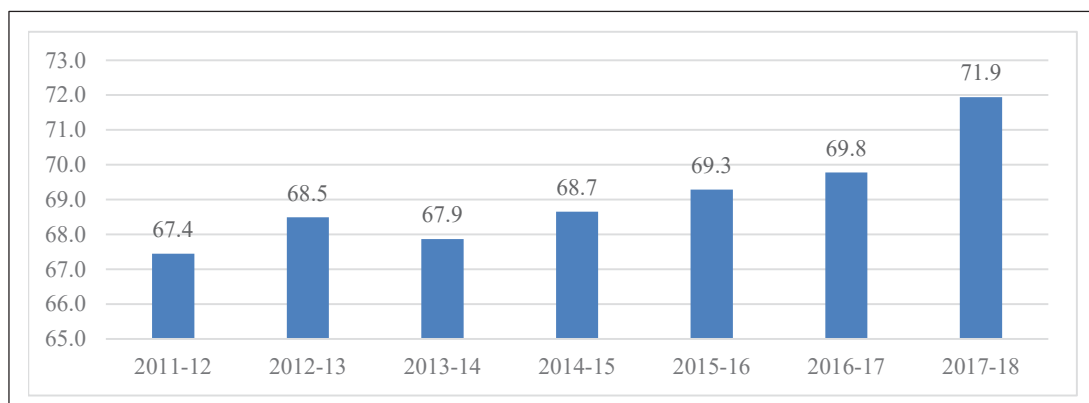
Table 3.26 : Gross irrigated area as percentage of Gross cropped area (2011-12 to 2017-18)

(Area in '000 hectare)

Years	Gross Cropped Area (GCA)	Gross Irrigated Area (GIA)	GIA as per cent of GCA
2011-12	7646.76	5157.51	67.45
2012-13	7777.52	5326.97	68.49
2013-14	7580.14	5144.77	67.87
2014-15	7672.95	5267.52	68.65
2015-16	7572.41	5246.85	69.29
2016-17	7654.36	5341.46	69.78
2017-18	7525.18	5413.51	71.94

Source : Directorate of Economics and Statistics, GoB

Chart 3.7 : Gross irrigated area as percentage of Gross cropped area (2011-12 to 2017-18)



Source : Directorate of Economics and Statistics, GoB

Table 3.26 presents the gross irrigated area as percentage of gross cropped area for the period 2011-12 to 2017-18. The same information has been presented in Chart 3.7. The ratio of gross irrigated area to gross cropped area has shown a steady increasing trend since 2013-14. During 2017-18, the share of gross irrigated area as percentage of gross cropped area stood at 71.9 percent, compared to 67.4 percent in 2011-12.

Table 3.27 : Trends in Public Expenditure in Irrigation Sector (2013-14 to 2018-19)

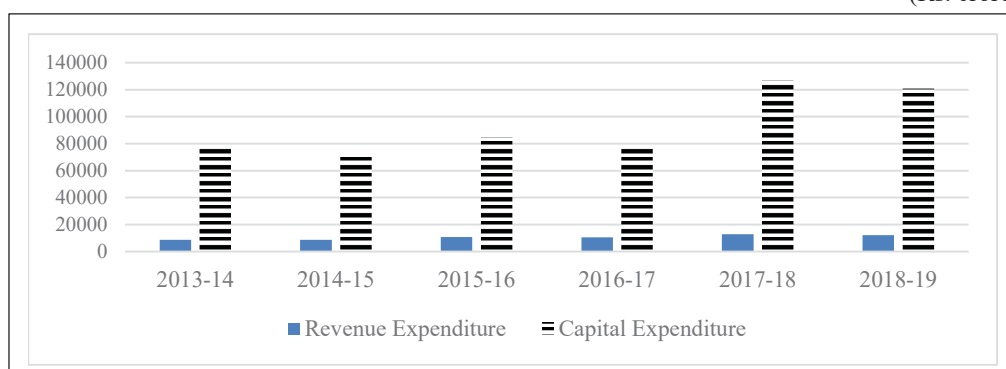
(Rs. crore)

Year	Revenue Expenditure	Capital Expenditure	Total Expenditure
2013-14	86.85	767.32	854.17
2014-15	86.87	721.67	808.55
2015-16	107.16	845.58	952.74
2016-17	106.53	772.22	878.75
2017-18	129.32	1268.71	1398.03
2018-19	120.86	1207.57	1328.43

Source : Department of Water Resources, GoB

Chart 3.8 : Composition of Public Expenditure in Irrigation Sector (2013-14 to 2018-19)

(Rs. crore)



Source : Department of Water Resources, GoB

Since agriculture is a state subject under the Indian constitution, the responsibility of spending on irrigation and water conservation lies with the State Governments. Chart 3.8 demonstrates the trends in public expenditure in irrigation sector for the period 2013-14 to 2018-19 and the data for the same is given in Table 3.27. The total expenditure for irrigation development increased from Rs. 854.17 crore in 2013-14 to Rs. 1328.43 crore in 2018-19, recording an annual growth rate of 11.4 percent. The share of capital expenditure stood at 90.9 percent of the total expenditure. A significant part of the government spending for irrigation is capital expenditure for creation of infrastructure and other assets. The capital expenditure increased from Rs. 767.32 crore in 2013-14 to Rs. 1207.57 crore in 2018-19. The increasing trend in capital expenditure in irrigation (especially over the last two years) signifies the high priority that the State Government has laid on developing irrigation infrastructure.

Irrigation potential

Bihar, because of its geographical location, is well-endowed with water resources. However, erratic rainfall and its irregular spatial distribution is of concern for achieving stability in agricultural production. Therefore, investing in different irrigation schemes is crucial for agricultural growth. The irrigation schemes in Bihar can be broadly divided into major, medium, and minor irrigation schemes. Table 3.28 presents the status of irrigation potential in Bihar for the period 2016-17 to 2018-19. Out of the ultimate irrigation potential of 117.54 lakh hectares in Bihar, the irrigation potential has been estimated to be 53.53 lakh hectares for major and medium irrigation schemes, while it is 64.01 lakh hectares from minor irrigation schemes. Further, the groundwater resource accounts for about 75.9 percent (48.57 lakh hectares) of ultimate irrigation potential. The total irrigation potential created from major and medium irrigation projects during 2018-19 stood around 30.04 lakh hectares, while it was 42.03 lakh hectares from minor irrigation projects.

Table 3.28 : Status of Irrigation Potential in Bihar (2016-17 to 2018-19)

(Area in lakh hectares)

Type of Irrigation Potential	Ultimate Potential	2016-17		2017-18		2018-19	
		Created Potential	Utilized Potential	Created Potential	Utilized Potential	Created Potential	Utilized Potential
(a) Major & Medium Irrigation	53.53	29.69	26.72	29.91	23.80	30.04	26.56
(b) Minor Irrigation	64.01	40.79	36.71	41.12	36.99	42.03	37.82
Surface Irrigation	15.44	8.14	7.33	8.35	7.50	8.70	7.83
Groundwater	48.57	32.66	29.38	32.77	29.49	33.33	30.00
Total	117.54	70.48	63.43	71.03	60.79	72.07	64.38

Note : The created and utilised potential is upto March

Source : Department of Minor Water Resources and Department of Water Resources, GoB

The issues of heavy sedimentation and breach in canal irrigation system lead to under-utilisation of the created irrigation potential. Therefore, the State Government has undertaken various initiatives to restore the lost irrigation potential. In 2018-19, such initiatives included — the Western Gandak Canal system, Eastern Kosi Canal System, Eastern Sone High Level Canal, Chausa Pump Canal scheme etc. The total irrigation potential restored under these schemes was 234.05 thousand hectares. In 2018-19, new irrigation potential was created by executing schemes such as Durgawati Reservoir Scheme, Kundhghat Reservoir Scheme, Sendhwa Check Dam in Jehanabad district, Weir on Panchane river in Nalanda district, Drainage and Irrigation Scheme of Danwar Lake, Western Gandak Canal System and Lavaichh Rampur Barrage. The total irrigation potential created under these schemes in 2018-19 was 12.75 thousand hectares (Table 3.29).

Table 3.29 : Irrigation Potential created under Major and Medium Irrigation Schemes (2018-19)

Name of Scheme	Created Irrigation Potential (in ha.)
Durgawati Reservoir Scheme	2190
Kundhghat Reservoir Scheme	600
Sendhwa Check Dam in Jehanabad District	2100
Weir on Panchane river in Nalanda district	2400
Drainage and Irrigation Scheme of Danwar Lake	4800
Western Gandak Canal System	160
Lavaichh Rampur Barrage	500
Total	12750

Source : Department of Water Resources, GoB

Without efficient utilisation of created irrigation potential, it is not possible to reap the benefits of investment in irrigation. Table 3.30 gives details of the present level of efficiency of major and medium irrigation projects in Bihar for the period 2013-14 to 2018-19. The potential utilization efficiency is measured as the ratio of actual irrigation and created irrigation potential. It is satisfactory to note that the average level efficiency in last three years has been much high at 86.0 percent. This improvement in efficiency is also evident from Chart 3.9.

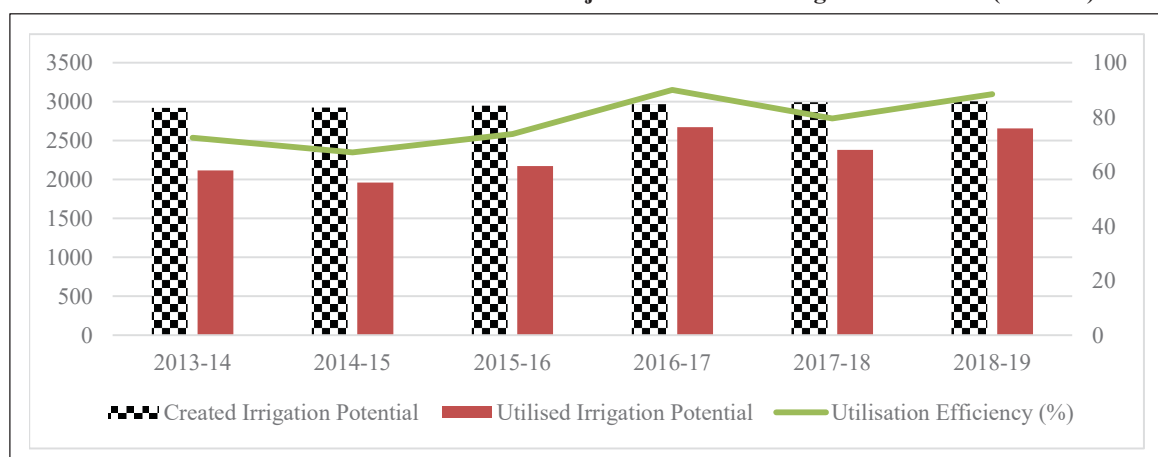
Table 3.30 : Water Use Efficiency under Major and Medium Irrigation Schemes (2013-2019)

(Figures in '000 ha)

Year	Created Irrigation Potential	Kharif		Rabi		Hot Weather		Total Utilised Irrigation Potential	Utilisation Efficiency (%)
		Target	Achievement	Target	Achievement	Target	Achievement		
2013-14	2921.08	1864.88	1614.31	567.38	490.81	11.83	11.83	2116.95	72.5
2014-15	2925.12	1864.88	1627.71	372.84	319.57	14.79	14.79	1962.07	67.1
2015-16	2946.44	1918.34	1717.79	484.53	430.54	28.17	25.51	2173.84	73.8
2016-17	2969.18	1981.58	1931.01	801.95	713.76	28.67	27.69	2672.46	90.0
2017-18	2991.08	2227.02	1953.52	430.03	398.81	28.67	27.69	2380.02	79.6
2018-19	3003.83	2108.04	2043.46	653.23	613.08	0.00	0.00	2656.54	88.4

Source : Department of Water Resources, GoB

Chart 3.9 : Pattern of Water Utilization of Major and Medium Irrigation Schemes (2013-19)



Source : Department of Water Resources, GoB

The information on area brought under irrigation through minor irrigation sources, such as surface canal, tanks (including ahars and pyne), tubewells and other sources is presented in Table 3.31. Under the minor irrigation projects, an area of 90.76 thousand hectares was brought under irrigation during 2018-19. The share of irrigation potential created by tubewells was the highest at an average of 52.0 percent during the period 2013-14 to 2018-19. Next in importance was tanks (including ahars and pynes) which accounted for 32.9 percent of the area. The total land brought under irrigation through minor sources has fluctuated over the years. It was the highest in 2016-17 (127.30 thousand hectares) and the lowest in 2014-15 (38.42 thousand hectares).

Table 3.31 : Area Brought under Irrigation through Minor Irrigation Sources (2013-14 to 2018-19)

(Area in hectares)

Source	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Surface Canal	26086	9310	-	2600	5500	-
Tanks (including Ahars and Pyne)	41591	10934	28631	20500	15830	29876
Tubewells (Private and State)	64251	15610	38440	86200	24000	55931
Other Sources (Lift Irrigation) and Barge Lift Irrigation	9627	2564	5055	18000	10160	4950
Total	141555	38418	72126	127300	55490	90757

Source : Department of Minor Water Resources, GoB

Table 3.32 : Status of Farmers' Societies (As on March 2019)

Status	Number
Management of Irrigation System Transferred	54
Irrigation systems ready for transfer to Societies	27
Applied for Registration	30
Under the process of motivation	511
Total	622

Source : Department of Water Resources, GoB

Initiatives of Minor Water Resources Department

The Department of Minor Water Resources has taken up several programmes to extend irrigation schemes under Agricultural Road Map III (2017-22). The Department has planned to create an additional irrigation potential of 8.25 lakh hectares through surface irrigation — Ahar- Pyne (5.56 lakh ha) and weir scheme (1.82 lakh ha), lift irrigation scheme (0.88 lakh ha).

1. **Surface Irrigation Scheme** : The Ahar Pyne Irrigation System, Weirs and Irrigation Ponds are renovated under three different sources of funding.
 - **State Plan** : A total of 77 schemes have been completed in 2018-19, creating an additional irrigation potential of 14708 hectares.
 - **RIDF Scheme (NABARD)**: 202 Ahar Pyne schemes are executed under Rural Infrastructure Development Fund (RIDF), out of which 189 schemes have been completed. An irrigation potential of 60.55 thousand hectares has been created in 2019-20.
 - **Pradhan Mantri Krishi Sinchai Yojna (PMKSY)** : A total of 44 Ahar-Pyne schemes in the districts of Nawada, Rohtas, Kaimur and Sitamarhi are being implemented and an irrigation potential of 18.85 thousand hectares has been created till date.
2. **Jal-Jeevan-Hariyali Abhiyan** : This scheme intends to assist in water conservation, storage and irrigation. All Public ahar-pynes and tanks will be renovated and check dams/weirs will be constructed on small rivers, nalas, etc. for collecting rain water during monsoon. These schemes will be completed in three years (from 2019-20 to 2021-22). An amount of Rs. 13610 crore has been allocated for completion of these schemes. In 2019-20, tenders of 1413 Ahar-Pyne, and Pond schemes have been finalized for execution with an estimated cost of Rs. 978 crore.
3. **Ground Water Irrigation Scheme** : As present, a total of 5183 state tubewells schemes are functional, out of 10,240 tubewells in Bihar.
4. **Bihar Shatabdi Nalkup Yojana** : The State Government provides grants up to a maximum of Rs 15,000 for 70-meter deep and Rs 35,000 for 100-meter deep tubewell to farmers. In addition, 50 percent of the cost of motor pump set is also provided, subject to a maximum of Rs 10,000. All the grants are transferred through Direct Benefit Transfer (DBT) Scheme. Till date, about 31,468 private tubewells have been established by farmers.
5. **Telemetry Scheme** (Automatic Digital Water Level Recorder) : A telemetry instrument has been installed at 564 places, of which 539 systems are already functional.
6. **Tubewell Ownership** : All the state tubewells have been transferred to Gram Panchayats (GP) for operation and maintenance. The GPs have been empowered to collect revenue and fix irrigation rates. A revenue of Rs. 21.25 lakh has been collected by the GPs in 2018-19.

The participatory irrigation system has provided impetus for the farmers to be involved in various aspects of irrigation system, particularly water distribution. The State Government is focused on participatory irrigation management so as to create a sense of ownership of water resources among the users, promote economy in water use and achieve equity in water distribution. As depicted in Table 3.32, as of March 2019, the management of irrigation system have already been transferred to 54 societies. Currently, the process of transfer for 27 more societies is ongoing in the state. At present, the State Government has adopted an ‘Integrated Water Management System’ which encompasses the major objects of water in dry land areas, recharge of groundwater and soil conservation. In addition, the system also encourages judicious use of water resources to ensure agricultural growth in the state.

APPENDIX

Table A 3.1 : District-wise Land Utilization Pattern (2017-18)

(Area in '000 hectares)

District	Geographical Area (1)	Area under Forest (2)	Land not available for cultivation (3)				Culturable Waste Land (4)
			Barren & Unculturable land	Non- Agriculture Use			
				Land Area	Water Area		
			Perennial		Temporary		
Patna	317.2 (100)	0.1 (0)	12.4 (3.9)	67.9 (21.4)	10.3 (3.3)	2 (0.6)	0.7 (0.2)
Nalanda	232.7 (100)	4.6 (2)	1.2 (0.5)	35.9 (15.4)	2.5 (1.1)	7 (3)	0.2 (0.1)
Bhojpur	237.3 (100)	0 (0)	6.7 (2.8)	30.4 (12.8)	2.8 (1.2)	1.5 (0.6)	0.6 (0.2)
Buxar	167 (100)	0 (0)	2.2 (1.3)	13.2 (7.9)	3.2 (1.9)	1.1 (0.7)	0.6 (0.4)
Rohtas	390.7 (100)	66.7 (17.1)	16.8 (4.3)	44.4 (11.4)	9 (2.3)	0.6 (0.2)	1.1 (0.3)
Kaimur	342.5 (100)	113 (33)	19.3 (5.6)	31.2 (9.1)	2.5 (0.7)	1.6 (0.5)	1.8 (0.5)
Gaya	493.8 (100)	77.8 (15.8)	27.5 (5.6)	63.4 (12.8)	3.8 (0.8)	6 (1.2)	3.2 (0.7)
Jehanabad	94 (100)	0.6 (0.7)	3.3 (3.5)	13.9 (14.8)	0.8 (0.9)	0.5 (0.6)	0.1 (0.1)
Arwal	62.6 (100)	0 (0)	2.2 (3.5)	9.2 (14.7)	0.6 (0.9)	0.8 (1.3)	0.1 (0.1)
Nawada	248.7 (100)	63.8 (25.6)	11.2 (4.5)	25.8 (10.4)	3 (1.2)	6.9 (2.8)	1.1 (0.4)
Aurangabad	330 (100)	18.8 (5.7)	16.4 (5)	56.4 (17.1)	1.7 (0.5)	1.7 (0.5)	1.8 (0.5)
Saran	264.9 (100)	0 (0)	17.9 (6.8)	28.9 (10.9)	3.5 (1.3)	0.2 (0.1)	0.2 (0.1)
Siwan	224.4 (100)	0 (0)	8.7 (3.9)	29.8 (13.3)	2 (0.9)	1.5 (0.7)	0.7 (0.3)
Gopalganj	203.8 (100)	0 (0)	5.5 (2.7)	31.3 (15.4)	2.1 (1)	0.5 (0.2)	1.4 (0.7)
W. Champaran	484.4 (100)	91.8 (18.9)	2.9 (0.6)	71.2 (14.7)	15.2 (3.1)	8.8 (1.8)	1.2 (0.3)
E. Champaran	431.7 (100)	0.1 (0)	8.1 (1.9)	51.7 (12)	10.1 (2.3)	15.2 (3.5)	0.2 (0.1)
Muzaffarpur	315.4 (100)	0 (0)	5.3 (1.7)	51.6 (16.4)	7.8 (2.5)	4 (1.3)	0.3 (0.1)
Sitamarhi	221.9 (100)	0 (0)	1.8 (0.8)	45.2 (20.4)	2.5 (1.1)	16 (7.2)	0.1 (0)
Sheohar	43.5 (100)	0 (0)	0.4 (0.9)	10 (23)	1.3 (2.9)	0.2 (0.3)	0 (0)
Vaishali	201.5 (100)	0 (0)	24.1 (12)	30.5 (15.1)	5.8 (2.9)	1.9 (1)	0.1 (0.1)
Darbhanga	254.1 (100)	0 (0)	1.3 (0.5)	44.3 (17.4)	9.4 (3.7)	7.4 (2.9)	0.1 (0.1)
Madhubani	353.5 (100)	0 (0)	2.2 (0.6)	71.3 (20.2)	13.4 (3.8)	2.2 (0.6)	0.5 (0.1)
Samastipur	262.4 (100)	0 (0)	3.8 (1.5)	54.7 (20.9)	8.2 (3.1)	0.8 (0.3)	0 (0)
Begusarai	187.8 (100)	0 (0)	18 (9.6)	30.3 (16.1)	7.7 (4.1)	4 (2.1)	0 (0)
Munger	139.8 (100)	28.5 (20.4)	11.4 (8.2)	20.9 (15)	5.8 (4.2)	5.3 (3.8)	0.9 (0.7)
Sheikhpura	62.1 (100)	0 (0)	1 (1.6)	7.8 (12.5)	0.9 (1.4)	2 (3.2)	0.2 (0.4)
Lakhisarai	128.6 (100)	13.5 (10.5)	7 (5.5)	9.3 (7.3)	1.2 (0.9)	4.7 (3.7)	0.7 (0.5)
Jamui	305.3 (100)	92.9 (30.4)	28.6 (9.4)	39.6 (13)	2.2 (0.7)	2.8 (0.9)	10.3 (3.4)
Khagaria	149.3 (100)	0 (0)	13.6 (9.1)	19.3 (12.9)	7.7 (5.2)	4.2 (2.8)	0.6 (0.4)
Bhagalpur	254.3 (100)	0.1 (0)	22.4 (8.8)	54.9 (21.6)	6.6 (2.6)	9.6 (3.8)	2.3 (0.9)
Banka	305.6 (100)	46.3 (15.2)	43 (14.1)	36.9 (12.1)	2.9 (0.9)	3 (1)	7.9 (2.6)
Saharsa	164.6 (100)	0 (0)	10.8 (6.6)	22.3 (13.5)	4.8 (2.9)	2.2 (1.3)	0.4 (0.2)
Supaul	238.6 (100)	0 (0)	20.2 (8.5)	39.3 (16.5)	9.8 (4.1)	3.1 (1.3)	1.4 (0.6)
Madhepura	179.6 (100)	0 (0)	3.9 (2.2)	26.9 (15)	3.9 (2.1)	1.2 (0.7)	0 (0)
Purnea	313.9 (100)	0.1 (0)	12.3 (3.9)	38.1 (12.1)	6.9 (2.2)	1.6 (0.5)	1.1 (0.4)
Kishanganj	189.1 (100)	0.4 (0.2)	11.2 (5.9)	26 (13.7)	7.3 (3.8)	2.7 (1.4)	1.2 (0.6)
Araria	271.7 (100)	0.8 (0.3)	5 (1.8)	41 (15.1)	6.4 (2.4)	5.5 (2)	0.5 (0.2)
Katihar	291.4 (100)	1.8 (0.6)	22.1 (7.6)	42.2 (14.5)	12.1 (4.2)	4.2 (1.4)	0.6 (0.2)
Bihar	9359.6 (100)	621.6 (6.6)	431.7 (4.6)	1366.7 (14.6)	207.4 (2.2)	144.3 (1.5)	44.3 (0.5)

Note : Figures in the parentheses denote percentage
Source : Directorate of Economics and Statistics, GoB

(Contd.)

Table A 3.1 : District-wise Land Utilization Pattern (2017-18) (Contd.)

(Area in '000 hectares)

District	Uncultivated land excluding fallow (5)		Fallow Land		Total Uncultivable Land (7) (2 to 6)	NSA (8)	GCA (9)	CI (10)
	Permanent Pastures	Tree Crops	Current Fallow	Other Fallow				
Patna	0.1 (0)	1 (0.3)	45.5 (14.3)	1.5 (0.5)	141.5 (44.6)	175.7 (55.4)	218.9 (69)	1.2
Nalanda	0 (0)	1.3 (0.6)	6.3 (2.7)	0.1 (0.1)	59.1 (25.4)	173.6 (74.6)	252.2 (108.4)	1.5
Bhojpur	0.1 (0)	2.1 (0.9)	4.5 (1.9)	2.3 (1)	51 (21.5)	186.4 (78.5)	199.3 (84)	1.1
Buxar	0 (0)	0.8 (0.5)	3.6 (2.1)	0.6 (0.3)	25.3 (15.1)	141.7 (84.9)	198.6 (118.9)	1.4
Rohtas	0.1 (0)	2.9 (0.7)	3.3 (0.8)	0.7 (0.2)	145.6 (37.3)	245.1 (62.7)	349.8 (89.5)	1.4
Kaimur	0.1 (0)	0.8 (0.2)	34.6 (10.1)	0.1 (0)	205 (59.9)	137.5 (40.1)	202.9 (59.3)	1.5
Gaya	2 (0.4)	3.9 (0.8)	111.9 (22.7)	11.3 (2.3)	310.9 (63)	182.9 (37)	212.9 (43.1)	1.2
Jehanabad	0.1 (0.1)	0.7 (0.8)	32 (34)	0.2 (0.2)	52.3 (55.6)	41.7 (44.4)	77.3 (82.2)	1.9
Arwal	0.1 (0.2)	0.9 (1.5)	3.5 (5.5)	1.6 (2.5)	18.9 (30.2)	43.7 (69.8)	65 (103.8)	1.5
Nawada	0.9 (0.3)	0.7 (0.3)	12.9 (5.2)	2.6 (1)	128.9 (51.8)	119.9 (48.2)	137.4 (55.2)	1.1
Aurangabad	0.5 (0.2)	0.7 (0.2)	25.4 (7.7)	1.1 (0.3)	124.4 (37.7)	205.6 (62.3)	287.4 (87.1)	1.4
Saran	0.1 (0.1)	8.6 (3.3)	45.5 (17.2)	3.6 (1.4)	108.5 (40.9)	156.4 (59.1)	191.8 (72.4)	1.2
Siwan	0.2 (0.1)	9 (4)	6.8 (3)	1.4 (0.6)	60.1 (26.8)	164.4 (73.2)	226.1 (100.7)	1.4
Gopalganj	0.2 (0.1)	7.5 (3.7)	13.6 (6.6)	2.3 (1.1)	64.3 (31.6)	139.5 (68.4)	207.4 (101.8)	1.5
W. Champaran	1.1 (0.2)	6.5 (1.3)	41.6 (8.6)	2.2 (0.5)	242.5 (50.1)	241.8 (49.9)	391.2 (80.8)	1.6
E. Champaran	0.4 (0.1)	27.2 (6.3)	32.4 (7.5)	2.9 (0.7)	148.2 (34.3)	283.5 (65.7)	412.9 (95.6)	1.5
Muzaffarpur	0 (0)	17.5 (5.5)	24.9 (7.9)	1.3 (0.4)	112.8 (35.8)	202.6 (64.2)	299.6 (95)	1.5
Sitamarhi	1.3 (0.6)	14 (6.3)	13 (5.8)	0.5 (0.2)	94.3 (42.5)	127.6 (57.5)	232.8 (104.9)	1.8
Sheohar	0 (0)	3.7 (8.4)	3.8 (8.7)	0.8 (1.9)	20.1 (46.2)	23.4 (53.7)	45.6 (104.9)	2
Vaishali	0.3 (0.2)	9.8 (4.9)	4.7 (2.3)	0.3 (0.1)	77.5 (38.5)	123.9 (61.5)	181.5 (90.1)	1.5
Darbhanga	0.1 (0.1)	12.5 (4.9)	29.4 (11.6)	2.1 (0.8)	106.6 (42)	147.5 (58)	171.9 (67.7)	1.2
Madhubani	1.3 (0.4)	24 (6.8)	3.2 (0.9)	2.9 (0.8)	120.9 (34.2)	232.6 (65.8)	340.1 (96.2)	1.5
Samastipur	0.1 (0)	8.3 (3.2)	9.9 (3.8)	0.9 (0.3)	86.7 (33)	175.7 (67)	307.8 (117.3)	1.8
Begusarai	0 (0)	3.8 (2)	15.7 (8.4)	0.8 (0.4)	80.2 (42.7)	107.6 (57.3)	157.7 (84)	1.5
Munger	0.2 (0.1)	0.6 (0.4)	21.9 (15.6)	1.9 (1.3)	97.4 (69.7)	42.4 (30.3)	48.7 (34.8)	1.1
Sheikhpura	0 (0)	0.3 (0.5)	1.3 (2)	1.6 (2.6)	15.1 (24.3)	47 (75.7)	60.7 (97.7)	1.3
Lakhisarai	0.1 (0)	0.4 (0.3)	29.3 (22.8)	6.3 (4.9)	72.4 (56.3)	56.2 (43.7)	77.3 (60.1)	1.4
Jamui	1.6 (0.5)	2.1 (0.7)	38.5 (12.6)	16 (5.2)	234.6 (76.8)	70.7 (23.2)	126.2 (41.3)	1.8
Khagaria	0.2 (0.1)	3.1 (2.1)	9.9 (6.6)	2.2 (1.4)	60.8 (40.7)	88.6 (59.3)	126.2 (84.5)	1.4
Bhagalpur	0.6 (0.2)	6.8 (2.7)	23.3 (9.2)	4.9 (1.9)	131.3 (51.6)	123 (48.4)	149.3 (58.7)	1.2
Banka	1 (0.3)	7.5 (2.4)	25.6 (8.4)	11.1 (3.6)	185.3 (60.6)	120.4 (39.4)	154.6 (50.6)	1.3
Saharsa	1.1 (0.7)	4.4 (2.7)	28.2 (17.1)	3.7 (2.3)	77.9 (47.3)	86.7 (52.7)	169.3 (102.9)	2
Supaul	0.2 (0.1)	3.1 (1.3)	1.7 (0.7)	9.4 (3.9)	88.3 (37)	150.4 (63)	252.3 (105.7)	1.7
Madhepura	0 (0)	7.2 (4)	8.4 (4.7)	1 (0.5)	52.4 (29.2)	127.2 (70.8)	187.9 (104.6)	1.5
Purnea	0 (0)	8.9 (2.8)	65.2 (20.8)	4.6 (1.5)	138.9 (44.3)	175 (55.7)	194.8 (62.1)	1.1
Kishanganj	0.4 (0.2)	5.2 (2.8)	30.1 (15.9)	3 (1.6)	87.4 (46.2)	101.7 (53.8)	143.9 (76.1)	1.4
Araria	0.2 (0.1)	19.2 (7.1)	51.2 (18.8)	3.5 (1.3)	133.3 (49)	138.4 (51)	264.9 (97.5)	1.9
Katihar	0.1 (0)	11.1 (3.8)	57.2 (19.6)	5.9 (2)	157.3 (54)	134 (46)	201.3 (69.1)	1.5
Bihar	15.1 (0.2)	248.2 (2.7)	919.5 (9.8)	118.9 (1.3)	4117.6 (44)	5242 (56)	7525.2 (80.4)	1.4

Note : CI represents cropping intensity; Figures in the parentheses denote percentage

Source : Directorate of Economics and Statistics, GoB

Table A 3.2 : District-wise Area, Production and Productivity of Rice (2017-18 and 2018-19)

(Area in '000 hectare/Production in '000 tonnes/ Productivity in kg/ha)

District	2017-18			2018-19		
	Area	Production	Productivity	Area	Production	Productivity
Patna	72.1 (2.2)	216.66 (2.7)	3005 (14)	73.47 (2.3)	178.89 (2.9)	2435 (7)
Nalanda	119.79 (3.6)	381.09 (4.7)	3181 (13)	107.63 (3.4)	225.22 (3.7)	2092 (13)
Bhojpur	97.11 (2.9)	393.67 (4.9)	4054 (1)	102.11 (3.2)	277.9 (4.5)	2722 (5)
Buxar	87.48 (2.6)	306.03 (3.8)	3498 (6)	87.52 (2.8)	199.29 (3.2)	2277 (11)
Rohtas	190.72 (5.8)	739.67 (9.1)	3878 (2)	192.98 (6.1)	792.14 (12.9)	4105 (1)
Kaimur	117.43 (3.6)	400.63 (5)	3412 (9)	118.44 (3.7)	354.09 (5.8)	2990 (4)
Gaya	100.02 (3)	342.28 (4.2)	3422 (8)	94.12 (3)	142.55 (2.3)	1515 (21)
Jehanabad	35.53 (1.1)	117.59 (1.5)	3310 (11)	34.1 (1.1)	80.34 (1.3)	2356 (8)
Arwal	42.52 (1.3)	159.9 (2)	3761 (3)	35.01 (1.1)	108.98 (1.8)	3113 (2)
Nawada	77.05 (2.3)	247.15 (3.1)	3208 (12)	65.2 (2.1)	104.33 (1.7)	1600 (20)
Aurangabad	178.07 (5.4)	638.83 (7.9)	3588 (4)	175.65 (5.6)	542.1 (8.8)	3086 (3)
Saran	62.39 (1.9)	116.16 (1.4)	1862 (24)	64.21 (2)	65.21 (1.1)	1016 (35)
Siwan	91 (2.8)	151.3 (1.9)	1663 (34)	91 (2.9)	64.52 (1)	709 (38)
Gopalganj	83.24 (2.5)	145.62 (1.8)	1749 (30)	35.42 (1.1)	29.81 (0.5)	842 (37)
W. Champaran	140.28 (4.2)	238.73 (2.9)	1702 (32)	138.26 (4.4)	254.35 (4.1)	1840 (15)
E. Champaran	188.95 (5.7)	270.04 (3.3)	1429 (37)	189.63 (6)	252.61 (4.1)	1332 (27)
Muzaffarpur	122.74 (3.7)	162.92 (2)	1327 (38)	118.13 (3.7)	128.45 (2.1)	1087 (34)
Sitamarhi	97.9 (3)	180.6 (2.2)	1845 (26)	98.72 (3.1)	175.15 (2.8)	1774 (16)
Sheohar	22.02 (0.7)	36.87 (0.5)	1675 (33)	21.58 (0.7)	32.17 (0.5)	1491 (22)
Vaishali	42.03 (1.3)	89.26 (1.1)	2124 (21)	40.88 (1.3)	45.87 (0.7)	1122 (32)
Darbhanga	78.57 (2.4)	135.76 (1.7)	1728 (31)	79.96 (2.5)	101.22 (1.6)	1266 (28)
Madhubani	203.4 (6.2)	303.34 (3.7)	1491 (36)	196.9 (6.2)	216.8 (3.5)	1101 (33)
Samastipur	97.11 (2.9)	202.59 (2.5)	2086 (22)	93.47 (3)	165.66 (2.7)	1772 (17)
Begusarai	18.68 (0.6)	51.44 (0.6)	2753 (16)	16.02 (0.5)	27.48 (0.4)	1716 (19)
Munger	27.18 (0.8)	76.67 (0.9)	2821 (15)	25.82 (0.8)	36.22 (0.6)	1403 (26)
Sheikhpura	30.7 (0.9)	71.27 (0.9)	2322 (18)	27.25 (0.9)	32.66 (0.5)	1199 (30)
Lakhisarai	31.68 (1)	107.29 (1.3)	3387 (10)	41.27 (1.3)	97.21 (1.6)	2355 (9)
Jamui	65.8 (2)	165.66 (2)	2518 (17)	45.79 (1.4)	53.31 (0.9)	1164 (31)
Khagaria	18.9 (0.6)	42.04 (0.5)	2224 (19)	18.87 (0.6)	27.25 (0.4)	1444 (25)
Bhagalpur	33.69 (1)	115.95 (1.4)	3442 (7)	32.82 (1)	28.68 (0.5)	874 (36)
Banka	91.76 (2.8)	325.73 (4)	3550 (5)	106.37 (3.4)	155.61 (2.5)	1463 (24)
Saharsa	67.54 (2)	120.25 (1.5)	1780 (28)	77.87 (2.5)	98.09 (1.6)	1260 (29)
Supaul	101.31 (3.1)	159.45 (2)	1574 (35)	103.35 (3.3)	201.73 (3.3)	1952 (14)
Madhepura	71.91 (2.2)	133.25 (1.6)	1853 (25)	79.71 (2.5)	201.24 (3.3)	2525 (6)
Purnea	110.9 (3.4)	217.59 (2.7)	1960 (23)	103.5 (3.3)	239.53 (3.9)	2314 (10)
Kishanganj	78.53 (2.4)	140.19 (1.7)	1785 (27)	78.59 (2.5)	116.21 (1.9)	1479 (23)
Araria	157.36 (4.8)	275.84 (3.4)	1753 (29)	57.98 (1.8)	101.52 (1.6)	1751 (18)
Katihar	53.51 (1.6)	113.85 (1.4)	2128 (20)	90.12 (2.9)	201.14 (3.3)	2232 (12)
Bihar	3306.9 (100)	8093.16 (100)	2447	3159.72 (100)	6155.53 (100)	1948

Note : Figures in parentheses denote percentage for area and production and ranking for productivity

Source : Department of Agriculture, GoB

Table A 3.3 : District-wise Area, Production and Productivity of Wheat (2017-18 and 2018-19)

(Area in '000 hectare/Production in '000 tonnes/ Productivity in kg/ha)

District	2017-18			2018-19		
	Area	Production	Productivity	Area	Production	Productivity
Patna	68.18 (3.2)	246.69 (4)	3618 (1)	72.02 (3.3)	252.15 (3.9)	3501 (8)
Nalanda	80.5 (3.8)	253.45 (4.2)	3149 (11)	75.2 (3.5)	266.55 (4.1)	3545 (7)
Bhojpur	71.5 (3.4)	213.08 (3.5)	2980 (16)	85.92 (4)	308 (4.8)	3585 (6)
Buxar	78.75 (3.7)	272.22 (4.5)	3456 (5)	80.12 (3.7)	265.5 (4.1)	3314 (11)
Rohtas	140.75 (6.7)	472.04 (7.7)	3354 (7)	140.73 (6.5)	517.85 (8)	3680 (3)
Kaimur	68.51 (3.3)	161.44 (2.6)	2356 (33)	73.43 (3.4)	218.39 (3.4)	2974 (16)
Gaya	71.95 (3.4)	231.67 (3.8)	3220 (10)	66.84 (3.1)	185.89 (2.9)	2781 (21)
Jehanabad	23.43 (1.1)	58.33 (1)	2490 (28)	23.2 (1.1)	76.92 (1.2)	3316 (10)
Arwal	13.56 (0.6)	31.54 (0.5)	2327 (34)	18.14 (0.8)	47.34 (0.7)	2609 (30)
Nawada	43.03 (2)	132.29 (2.2)	3075 (14)	46.2 (2.1)	127.86 (2)	2768 (23)
Aurangabad	70.32 (3.3)	177.44 (2.9)	2523 (27)	86.38 (4)	224.76 (3.5)	2602 (31)
Saran	77.6 (3.7)	243.27 (4)	3135 (12)	89.6 (4.2)	255.8 (4)	2855 (20)
Siwan	90.63 (4.3)	262.86 (4.3)	2901 (19)	90.63 (4.2)	276.42 (4.3)	3050 (15)
Gopalganj	74.21 (3.5)	192.6 (3.2)	2595 (26)	74.4 (3.4)	194.44 (3)	2613 (29)
W. Champaran	70.31 (3.3)	160.94 (2.6)	2289 (36)	70.13 (3.3)	192.92 (3)	2751 (25)
E. Champaran	118.82 (5.7)	289.77 (4.7)	2439 (31)	118.51 (5.5)	301.43 (4.7)	2544 (33)
Muzaffarpur	91.87 (4.4)	258.18 (4.2)	2810 (21)	123.3 (5.7)	335.65 (5.2)	2722 (26)
Sitamarhi	87.79 (4.2)	258.99 (4.2)	2950 (18)	88.57 (4.1)	321.41 (5)	3629 (4)
Sheohar	14.45 (0.7)	44.55 (0.7)	3083 (13)	14.27 (0.7)	43.97 (0.7)	3082 (14)
Vaishali	40.75 (1.9)	132.67 (2.2)	3256 (9)	40.7 (1.9)	112.72 (1.7)	2769 (22)
Darbhanga	57.92 (2.8)	173.99 (2.9)	3004 (15)	58.3 (2.7)	146.39 (2.3)	2511 (34)
Madhubani	90.46 (4.3)	196.94 (3.2)	2177 (37)	91.43 (4.2)	182.21 (2.8)	1993 (38)
Samastipur	55.97 (2.7)	202.36 (3.3)	3616 (2)	55.8 (2.6)	200.72 (3.1)	3597 (5)
Begusarai	57.33 (2.7)	200.23 (3.3)	3492 (4)	68.28 (3.2)	257.79 (4)	3775 (2)
Munger	13.89 (0.7)	38.83 (0.6)	2795 (22)	13.85 (0.6)	38.3 (0.6)	2765 (24)
Sheikhpura	21.93 (1)	60.66 (1)	2766 (23)	21.23 (1)	46.7 (0.7)	2200 (36)
Lakhisarai	29.69 (1.4)	88.05 (1.4)	2966 (17)	29.55 (1.4)	87.37 (1.4)	2957 (17)
Jamui	42.92 (2)	105.71 (1.7)	2463 (29)	26.97 (1.3)	57.01 (0.9)	2113 (37)
Khagaria	28.48 (1.4)	97.21 (1.6)	3414 (6)	28.19 (1.3)	95.93 (1.5)	3403 (9)
Bhagalpur	47.5 (2.3)	156.47 (2.6)	3294 (8)	49.06 (2.3)	160.67 (2.5)	3275 (12)
Banka	33.13 (1.6)	90.88 (1.5)	2743 (24)	22.63 (1)	65.44 (1)	2892 (19)
Saharsa	49.38 (2.3)	140.53 (2.3)	2846 (20)	48.66 (2.3)	124.71 (1.9)	2563 (32)
Supaul	52.62 (2.5)	126.33 (2.1)	2401 (32)	53.27 (2.5)	131.46 (2)	2468 (35)
Madhepura	32.03 (1.5)	115.71 (1.9)	3612 (3)	28.43 (1.3)	108.18 (1.7)	3805 (1)
Purnea	19.78 (0.9)	48.7 (0.8)	2462 (30)	18.1 (0.8)	58.86 (0.9)	3252 (13)
Kishanganj	17.77 (0.8)	33.09 (0.5)	1862 (38)	17.79 (0.8)	47.25 (0.7)	2655 (27)
Araria	25.36 (1.2)	58.14 (1)	2293 (35)	23.36 (1.1)	61.69 (1)	2641 (28)
Katihar	28.25 (1.3)	76.45 (1.3)	2706 (25)	23.46 (1.1)	69.26 (1.1)	2952 (18)
Bihar	2101.31 (100)	6104.3 (100)	2905	2156.65 (100)	6465.91 (100)	2998

Note : Figures in parentheses denote percentage for area and production and ranking for productivity

Source : Department of Agriculture, GoB

Table A 3.4 : District-wise Area, Production and Productivity of Maize (2017-18 and 2018-19)

(Area in '000 hectare/Production in '000 tonnes/ Productivity in kg/ha)

District	2017-18			2018-19		
	Area	Production	Productivity	Area	Production	Productivity
Patna	5.56 (0.8)	24.58 (0.8)	4418 (12)	8.23 (1.2)	28.82 (0.9)	3501 (19)
Nalanda	6.92 (1)	29.48 (0.9)	4263 (14)	6.33 (0.9)	17.54 (0.5)	2772 (23)
Bhojpur	2.11 (0.3)	5.24 (0.2)	2482 (33)	3.69 (0.6)	5.08 (0.2)	1378 (37)
Buxar	1.35 (0.2)	3.59 (0.1)	2665 (31)	0.6 (0.1)	1.13 (0.04)	1885 (34)
Rohtas	0.07 (0)	0.22 (0)	3027 (26)	-	-	-
Kaimur	0.12 (0)	0.43 (0)	3612 (20)	0.07 (0)	0.16 (0)	2397 (30)
Gaya	2.88 (0.4)	8.81 (0.3)	3057 (25)	0.72 (0.1)	2.57 (0.1)	3552 (17)
Jehanabad	0.4 (0.1)	1.66 (0.1)	4163 (15)	0.23 (0)	0.86 (0.03)	3675 (14)
Arwal	0.45 (0.1)	2.09 (0.1)	4634 (9)	0.17 (0)	0.44 (0.01)	2618 (26)
Nawada	1.21 (0.2)	4.38 (0.1)	3622 (19)	1.13 (0.2)	2.45 (0.1)	2170 (31)
Aurangabad	0.23 (0)	0.6 (0)	2658 (32)	0.09 (0)	0.13 (0.004)	1420 (36)
Saran	26.89 (4)	84.13 (2.7)	3129 (24)	22.87 (3.4)	58.56 (1.8)	2561 (27)
Siwan	18.96 (2.8)	53.14 (1.7)	2802 (29)	17.75 (2.7)	43.45 (1.4)	2448 (29)
Gopalganj	14.9 (2.2)	41.2 (1.3)	2765 (30)	10.03 (1.5)	31.16 (1)	3107 (21)
W. Champaran	4.9 (0.7)	15.91 (0.5)	3245 (23)	4.82 (0.7)	17.24 (0.5)	3575 (16)
E. Champaran	46.09 (6.8)	111.43 (3.6)	2418 (34)	46.23 (6.9)	89.83 (2.8)	1943 (33)
Muzaffarpur	35.04 (5.2)	54.01 (1.7)	1542 (37)	33.34 (5)	117.71 (3.7)	3531 (18)
Sitamarhi	5.34 (0.8)	21.07 (0.7)	3945 (16)	3.74 (0.6)	17.32 (0.5)	4627 (10)
Sheohar	1.63 (0.2)	5.71 (0.2)	3503 (21)	1.78 (0.3)	7.51 (0.2)	4232 (12)
Vaishali	32.18 (4.8)	105.22 (3.4)	3269 (22)	32.15 (4.8)	84.99 (2.7)	2644 (25)
Darbhanga	9.38 (1.4)	34.47 (1.1)	3675 (18)	8.57 (1.3)	43.54 (1.4)	5083 (9)
Madhubani	0.17 (0)	0.84 (0)	5078 (7)	0.28 (0)	0.78 (0.02)	2756 (24)
Samastipur	66.89 (9.9)	444.68 (14.2)	6648 (3)	68.76 (10.3)	266.68 (8.3)	3878 (13)
Begusarai	46.45 (6.9)	99.95 (3.2)	2152 (35)	54.32 (8.1)	199.11 (6.2)	3666 (15)
Munger	2.2 (0.3)	6.61 (0.2)	3002 (27)	2.34 (0.3)	4.87 (0.2)	2078 (32)
Sheikhpura	0.61 (0.1)	0.91 (0)	1497 (38)	0.65 (0.1)	1.06 (0)	1618 (35)
Lakhisarai	2.47 (0.4)	5.03 (0.2)	2032 (36)	7.53 (1.1)	20.91 (0.7)	2776 (22)
Jamui	3.42 (0.5)	9.75 (0.3)	2852 (28)	4.01 (0.6)	10.08 (0.3)	2514 (28)
Khagaria	59.51 (8.8)	295.74 (9.5)	4953 (8)	59.48 (8.9)	255.42 (8)	4294 (11)
Bhagalpur	38.91 (5.7)	179.46 (5.8)	4613 (10)	30.17 (4.5)	170.14 (5.3)	5638 (8)
Banka	10.13 (1.5)	39.09 (1.3)	3859 (17)	8.29 (1.2)	27.46 (0.9)	3310 (20)
Saharsa	26.14 (3.9)	134.49 (4.3)	5145 (6)	26.17 (3.9)	148.34 (4.6)	5668 (7)
Supaul	17.91 (2.6)	100.1 (3.2)	5641 (5)	11.88 (1.8)	82.3 (2.6)	6928 (3)
Madhepura	37.61 (5.6)	166.7 (5.3)	4432 (11)	39.34 (5.9)	269.66 (8.4)	6855 (5)
Purnea	30.53 (4.5)	205.7 (6.6)	6738 (2)	37.47 (5.6)	344.26 (10.8)	9188 (1)
Kishanganj	3.56 (0.5)	23.3 (0.7)	6541 (4)	3.23 (0.5)	18.75 (0.6)	5809 (6)
Araria	48.9 (7.2)	212.19 (6.8)	4339 (13)	44.32 (6.6)	327.78 (10.3)	7396 (2)
Katihar	65.42 (9.7)	588.87 (18.9)	9002 (1)	68.7 (10.3)	475.83 (14.9)	6927 (4)
Bihar	677.44 (100)	3120.77 (100)	4607 (48)	669.48 (100)	3193.91 (100)	4771

Note : Figures in parentheses denote percentage for area and production and ranking for productivity

Source : Department of Agriculture, GoB

Table A 3.5 : District-wise Area, Production and Productivity of Pulses (2017-18 and 2018-19)

(Area in '000 hectare/Production in '000 tonnes/ Productivity in kg/ha)

District	2017-18			2018-19		
	Area	Production	Productivity	Area	Production	Productivity
Patna	46.9 (9.9)	69.92 (15.4)	1491 (3)	49.82 (10.4)	67.89 (15)	1362 (2)
Nalanda	25.43 (5.3)	28.76 (6.3)	1131 (11)	25.96 (5.4)	28 (6.2)	1079 (12)
Bhojpur	12.8 (2.7)	13.76 (3)	1076 (12)	12.81 (2.7)	14.93 (3.3)	1165 (7)
Buxar	7.71 (1.6)	10.88 (2.4)	1410 (4)	5.65 (1.2)	7.76 (1.7)	1374 (1)
Rohtas	10.92 (2.3)	11.41 (2.5)	1046 (13)	10.87 (2.3)	12.46 (2.7)	1146 (8)
Kaimur	11.46 (2.4)	10.81 (2.4)	944 (19)	11.97 (2.5)	10.58 (2.3)	884 (24)
Gaya	18.78 (3.9)	16.68 (3.7)	888 (22)	16.69 (3.5)	17.58 (3.9)	1054 (14)
Jehanabad	14.54 (3.1)	18.44 (4.1)	1268 (6)	14.32 (3)	17.55 (3.9)	1226 (5)
Arwal	5.65 (1.2)	4.66 (1)	825 (25)	5.82 (1.2)	6.06 (1.3)	1042 (15)
Nawada	9.58 (2)	12.27 (2.7)	1281 (5)	9.81 (2)	9.76 (2.2)	995 (16)
Aurangabad	31.06 (6.5)	29.8 (6.6)	959 (17)	42.2 (8.8)	31.39 (6.9)	744 (34)
Saran	2.39 (0.5)	4.68 (1)	1960 (1)	2.51 (0.5)	2.27 (0.5)	902 (21)
Siwan	3.76 (0.8)	4.48 (1)	1190 (9)	3.76 (0.8)	3.56 (0.8)	948 (19)
Gopalganj	1.58 (0.3)	1.14 (0.3)	718 (31)	1.56 (0.3)	1.7 (0.4)	1087 (11)
W. Champaran	9.79 (2.1)	7.72 (1.7)	789 (27)	9.48 (2)	8.83 (1.9)	889 (23)
E. Champaran	9.94 (2.1)	11.76 (2.6)	1183 (10)	9.91 (2.1)	13.22 (2.9)	1333 (3)
Muzaffarpur	27.71 (5.8)	15.74 (3.5)	568 (35)	26.04 (5.4)	20.2 (4.5)	776 (31)
Sitamarhi	6.12 (1.3)	4.57 (1)	748 (30)	6.13 (1.3)	4.35 (1)	710 (35)
Sheohar	2.11 (0.4)	1.22 (0.3)	577 (34)	2.12 (0.4)	1.77 (0.4)	834 (28)
Vaishali	8.64 (1.8)	13.19 (2.9)	1526 (2)	8.6 (1.8)	8.39 (1.9)	976 (17)
Darbhanga	12.12 (2.5)	9.16 (2)	756 (29)	10.78 (2.2)	8.41 (1.9)	780 (30)
Madhubani	23.51 (4.9)	21.72 (4.8)	924 (21)	23.95 (5)	25.33 (5.6)	1058 (13)
Samastipur	15.77 (3.3)	8.77 (1.9)	556 (36)	17.09 (3.6)	8.47 (1.9)	496 (37)
Begusarai	4.96 (1)	4.98 (1.1)	1003 (14)	4.75 (1)	5.3 (1.2)	1115 (10)
Munger	2.3 (0.5)	2.25 (0.5)	980 (16)	2.36 (0.5)	2.2 (0.5)	934 (20)
Sheikhpura	5.02 (1.1)	6.2 (1.4)	1235 (7)	4.49 (0.9)	5.25 (1.2)	1170 (6)
Lakhisarai	10.42 (2.2)	12.6 (2.8)	1209 (8)	10 (2.1)	12.3 (2.7)	1229 (4)
Jamui	8.61 (1.8)	8.24 (1.8)	957 (18)	9.67 (2)	10.89 (2.4)	1126 (9)
Khagaria	6.82 (1.4)	6.31 (1.4)	925 (20)	6.83 (1.4)	6.52 (1.4)	954 (18)
Bhagalpur	12.06 (2.5)	9.37 (2.1)	777 (28)	11.92 (2.5)	9.05 (2)	759 (32)
Banka	9.2 (1.9)	7.43 (1.6)	807 (26)	8.49 (1.8)	7.28 (1.6)	858 (26)
Saharsa	20.1 (4.2)	12.73 (2.8)	633 (33)	19.21 (4)	14.37 (3.2)	748 (33)
Supaul	32.14 (6.8)	16.09 (3.5)	501 (37)	32.81 (6.8)	18.61 (4.1)	567 (36)
Madhepura	19.55 (4.1)	16.76 (3.7)	857 (24)	17.36 (3.6)	14.92 (3.3)	859 (25)
Purnea	5.45 (1.1)	2.59 (0.6)	475 (38)	1.3 (0.3)	1.16 (0.3)	895 (22)
Kishanganj	9.49 (2)	6.22 (1.4)	656 (32)	8.88 (1.9)	4.37 (1)	492 (38)
Araria	5.15 (1.1)	4.49 (1)	871 (23)	4.84 (1)	3.8 (0.8)	785 (29)
Katihar	6.46 (1.4)	6.37 (1.4)	986 (15)	8.61 (1.8)	7.35 (1.6)	854 (27)
Bihar	476 (100)	454.17 (100)	954	479.37 (100)	453.43 (100)	946

Note : Figures in parentheses denote percentage for area and production and ranking for productivity

Source : Department of Agriculture, GoB

Table A 3.6 : District-wise Area, Production and Productivity of Sugarcane (2017-18 and 2018-19)

(Area in '000 ha./ Production in '000 tonnes/ Yield in Ton/ha)

District	2017-18			2018-19		
	Area	Production	Productivity	Area	Production	Productivity
Patna	0.38 (0.14)	3.52 (0.2)	92.14 (1)	0.35 (0.12)	2.97 (0.16)	84.77 (1)
Nalanda	0.06 (0.02)	0.39 (0.02)	63.84 (15)	0.06 (0.02)	0.34 (0.02)	60 (14)
Bhojpur	0.33 (0.12)	1.66 (0.09)	50 (36)	0.35 (0.12)	1.77 (0.1)	50 (33)
Buxar	0.21 (0.08)	1.26 (0.07)	60.01 (18)	0.18 (0.06)	1 (0.05)	57.05 (23)
Rohtas	0.1 (0.04)	0.52 (0.03)	52.22 (35)	0.09 (0.03)	0.47 (0.03)	52.5 (29)
Kaimur	0.18 (0.07)	0.89 (0.05)	48.83 (37)	0.18 (0.06)	0.85 (0.05)	46.85 (36)
Gaya	0.15 (0.06)	1.11 (0.06)	73.99 (3)	0.14 (0.05)	0.94 (0.05)	67.72 (4)
Jehanabad	0.1 (0.04)	0.61 (0.03)	59.75 (20)	0.09 (0.03)	0.49 (0.03)	53.78 (27)
Arwal	0.01 (0)	0.06 (0)	65.79 (11)	0.01 (0)	0.05 (0)	59.6 (15)
Nawada	0.21 (0.08)	1.21 (0.07)	56.81 (27)	0.19 (0.06)	1 (0.05)	51.75 (31)
Aurangabad	0.1 (0.04)	0.72 (0.04)	73.98 (4)	0.09 (0.03)	0.59 (0.03)	66.59 (5)
Saran	1.17 (0.43)	8.54 (0.49)	73.17 (6)	1.32 (0.44)	7.63 (0.42)	57.64 (22)
Siwan	1.35 (0.5)	9.86 (0.56)	73.21 (5)	1.28 (0.42)	7.58 (0.41)	59.43 (16)
Gopalgunj	25.11 (9.34)	162.99 (9.26)	64.92 (12)	25.95 (8.53)	162.76 (8.9)	62.72 (9)
W. Champaran	145.33 (54.04)	992.1 (56.34)	68.27 (8)	172.3 (56.65)	1067.14 (58.32)	61.93 (11)
E. Champaran	34.7 (12.9)	220.85 (12.54)	63.65 (16)	38.54 (12.67)	189.89 (10.38)	49.27 (34)
Muzaffarpur	8.17 (3.04)	54.35 (3.09)	66.54 (9)	9.18 (3.02)	60.49 (3.31)	65.91 (6)
Sitamarhi	15.45 (5.75)	92.44 (5.25)	59.82 (19)	18.07 (5.94)	109.28 (5.97)	60.49 (12)
Sheohar	3.59 (1.33)	20.83 (1.18)	58.08 (25)	3.93 (1.29)	23.02 (1.26)	58.51 (19)
Vaisali	1.24 (0.46)	8.19 (0.46)	65.93 (10)	1.29 (0.42)	8.45 (0.46)	65.51 (7)
Darbhanga	1.56 (0.58)	10.11 (0.57)	64.83 (13)	1.36 (0.45)	7.88 (0.43)	57.91 (21)
Madhubani	4.28 (1.59)	27.75 (1.58)	64.83 (14)	3.82 (1.26)	22.62 (1.24)	59.26 (17)
Samastipur	6.05 (2.25)	33.51 (1.9)	55.38 (30)	7.77 (2.55)	46.85 (2.56)	60.31 (13)
Begusarai	5.88 (2.19)	33.68 (1.91)	57.3 (26)	7.36 (2.42)	47.84 (2.61)	65.02 (8)
Munger	0.18 (0.07)	1.08 (0.06)	60.86 (17)	0.16 (0.05)	0.91 (0.05)	55.99 (25)
Sheikhpura	0.32 (0.12)	1.86 (0.11)	58.86 (22)	0.28 (0.09)	1.45 (0.08)	51.92 (30)
Lakhisarai	0.02 (0.01)	0.11 (0.01)	56.14 (29)	0.02 (0.01)	0.09 (0.01)	51.02 (32)
Jamui	0.29 (0.11)	1.74 (0.1)	59.27 (21)	0.26 (0.09)	1.41 (0.08)	53.32 (28)
Khagaria	0.38 (0.14)	2.19 (0.12)	58.16 (24)	0.42 (0.14)	2.6 (0.14)	62.49 (10)
Bhagalpur	2.4 (0.89)	12.95 (0.74)	53.92 (33)	0.65 (0.21)	3 (0.16)	46.14 (37)
Banka	2.2 (0.82)	12.36 (0.7)	56.3 (28)	1.05 (0.34)	5.05 (0.28)	48.32 (35)
Saharsa	1.29 (0.48)	7.12 (0.4)	55.22 (31)	1.29 (0.42)	7.5 (0.41)	58.1 (20)
Supaul	-	-	-	-	-	-
Madhepura	4.68 (1.74)	25.04 (1.42)	53.57 (34)	4.68 (1.54)	26.65 (1.46)	57.01 (24)
Purnea	0.9 (0.33)	5.26 (0.3)	58.46 (23)	0.9 (0.3)	5.29 (0.29)	58.83 (18)
Kishanganj	0.22 (0.08)	2.05 (0.12)	91.51 (2)	0.22 (0.07)	1.79 (0.1)	79.86 (2)
Araria	0.28 (0.1)	1.52 (0.09)	54.07 (32)	0.28 (0.09)	1.52 (0.08)	54.07 (26)
Katihar	0.08 (0.03)	0.55 (0.03)	68.74 (7)	0.08 (0.03)	0.55 (0.03)	68.74 (3)
Bihar	268.94 (100)	1761.01 (100)	69.06	304.18 (100)	1829.72 (100)	60.15

Note : Figures in parentheses denote percentage and ranking for productivity

Source : Department of Sugarcane, GoB

Table A 3.7 : District-wise Area and Production of Important Fruits (2017-18 and 2018-19)

(Area in '000 hectare/Production in '000 tonnes)

District	Banana				Guava			
	2017-18		2018-19		2017-18		2018-19	
	Area	Production	Area	Production	Area	Production	Area	Production
Patna	0.72 (2.3)	31.17 (2.2)	1.24 (3.6)	53.23 (3.3)	1.23 (4.5)	10.06 (2.4)	2.09 (7.2)	17.12 (3.9)
Nalanda	0.54 (1.7)	22.5 (1.6)	0.03 (0.1)	1.04 (0.1)	1.5 (5.4)	170.6 (39.9)	1.52 (5.2)	71.35 (39.5)
Bhojpur	0.5 (1.6)	19 (1.4)	0.26 (0.8)	9.8 (0.6)	1.93 (7)	16.5 (3.9)	1.58 (5.4)	13.53 (3.1)
Buxar	0.16 (0.5)	8.3 (0.6)	0.17 (0.5)	8.72 (0.5)	1.2 (4.3)	9.37 (2.2)	1.26 (4.3)	9.78 (2.3)
Rohtas	0.34 (1.1)	16 (1.1)	0.42 (1.2)	20 (1.3)	3.48 (12.6)	28.45 (6.7)	4.35 (14.9)	35.57 (8.2)
Kaimur	0.21 (0.7)	9.24 (0.7)	0.21 (0.6)	8.31 (0.5)	1.4 (5.1)	10.6 (2.5)	1.39 (4.8)	10.09 (2.3)
Gaya	0.3 (1)	12.9 (0.9)	0.31 (0.9)	13 (0.8)	0.7 (2.5)	5.5 (1.3)	0.74 (2.5)	5.7 (1.3)
Jehanabad	0.21 (0.7)	8.3 (0.6)	0.23 (0.7)	9.11 (0.6)	0.3 (1.1)	2.1 (0.5)	0.31 (1.1)	2.19 (0.5)
Arwal	0.15 (0.5)	9.15 (0.7)	0.14 (0.4)	9.01 (0.6)	0.2 (0.7)	1.8 (0.4)	0.19 (0.7)	1.77 (0.4)
Nawada	0.31 (1)	9.27 (0.7)	0.3 (0.9)	9 (0.6)	0.38 (1.4)	3 (0.7)	0.3 (1)	2.4 (0.6)
Aurangabad	0.31 (1)	1.21 (0.1)	0.24 (0.7)	0.96 (0.1)	0.54 (2)	3.7 (0.9)	0.5 (1.7)	3.51 (0.8)
Saran			0.92 (2.7)	37.48 (2.4)				
Siwan	0.8 (2.6)	45.1 (3.2)	0.82 (2.4)	46.23 (2.9)	0.7 (2.5)	5.46 (1.3)	0.7 (2.4)	5.5 (1.3)
Gopalganj	0.65 (2.1)	43 (3.1)	0.54 (1.6)	34 (2.1)	0.6 (2.2)	4.85 (1.1)	0.47 (1.6)	3.8 (0.9)
W. Champaran	1.15 (3.7)	53.32 (3.8)	1.2 (3.5)	55.64 (3.5)	1.65 (6)	14.23 (3.3)	1.7 (5.8)	14.66 (3.4)
E. Champaran	1.05 (3.4)	45.91 (3.3)	1.38 (4)	61.37 (3.9)	1.28 (4.6)	10.53 (2.5)	1.3 (4.5)	11.1 (2.6)
Muzaffarpur	1.9 (6.1)	140.91 (10.1)	1.86 (5.4)	138.75 (8.7)	0.92 (3.3)	54.23 (12.7)	0.85 (2.9)	46.85 (10.8)
Sitamarhi	0.71 (2.3)	30.83 (2.2)	0.8 (2.3)	32 (2)	0.7 (2.5)	6.19 (1.4)	0.7 (2.4)	6.19 (1.4)
Sheohar	0.3 (1)	13 (0.9)	0.3 (0.9)	13.2 (0.8)	0.3 (1.1)	2.62 (0.6)	0.3 (1)	2.7 (0.6)
Vaishali	3.4 (10.9)	142.08 (10.2)	3.63 (10.6)	152.63 (9.6)	1.5 (5.4)	11.2 (2.6)	1.69 (5.8)	12.52 (2.9)
Darbhanga	1.31 (4.2)	72.19 (5.2)	1.03 (3)	56.8 (3.6)	0.54 (2)	4.41 (1)	0.56 (1.9)	4.44 (1)
Madhubani	1 (3.2)	49 (3.5)	1 (2.9)	48.35 (3)	0.5 (1.8)	4.1 (1)	0.49 (1.7)	4.08 (0.9)
Samastipur	2.31 (7.4)	102.95 (7.4)	2.32 (6.7)	102.1 (6.4)	0.7 (2.5)	5.31 (1.2)	0.71 (2.4)	5.34 (1.2)
Begusarai	1.11 (3.6)	50.39 (3.6)	1.12 (3.3)	51 (3.2)	0.4 (1.5)	3.71 (0.9)	0.4 (1.4)	3.72 (0.9)
Munger	0.32 (1)	13.54 (1)	0.32 (0.9)	13.7 (0.9)	0.3 (1.1)	2.53 (0.6)	0.35 (1.2)	2.78 (0.6)
Sheikhpura	0.08 (0.3)	4.9 (0.4)	0.07 (0.2)	4.59 (0.3)	0.08 (0.3)	0.9 (0.2)	0.08 (0.3)	0.86 (0.2)
Lakhisarai	0.16 (0.5)	6.94 (0.5)	0.17 (0.5)	7.05 (0.4)	0.15 (0.5)	1.17 (0.3)	0.15 (0.5)	1.25 (0.3)
Jamui	0.2 (0.7)	9.35 (0.7)	0.2 (0.6)	9.45 (0.6)	0.2 (0.7)	1.67 (0.4)	0.2 (0.7)	1.64 (0.4)
Khagaria	1.11 (3.6)	46.12 (3.3)	1.1 (3.2)	45.79 (2.9)	0.4 (1.4)	3 (0.7)	0.39 (1.3)	2.93 (0.7)
Bhagalpur	1.35 (4.3)	54.43 (3.9)	1.35 (3.9)	55.19 (3.5)	0.71 (2.6)	5.58 (1.3)	0.71 (2.4)	5.58 (1.3)
Banka	0.41 (1.3)	15.07 (1.1)	0.4 (1.2)	15.05 (0.9)	0.3 (1.1)	2.5 (0.6)	0.3 (1)	2.5 (0.6)
Saharsa	1.21 (3.9)	51.97 (3.7)	1.21 (3.5)	51.85 (3.3)	0.72 (2.6)	5.39 (1.3)	0.72 (2.5)	5.41 (1.2)
Supaul	0.74 (2.4)	25.24 (1.8)	0.86 (2.5)	29.19 (1.8)	0.42 (1.5)	3.47 (0.8)	0.49 (1.7)	4.01 (0.9)
Madhepura	1.78 (5.7)	86.72 (6.2)	1.43 (4.1)	69.44 (4.4)	0.53 (1.9)	3.75 (0.9)	0.69 (2.4)	4.93 (1.1)
Purnea	1.2 (3.9)	44.77 (3.2)	1.21 (3.5)	44.77 (2.8)	0.4 (1.4)	3.2 (0.7)	0.4 (1.4)	3.2 (0.7)
Kishanganj	0.71 (2.3)	31.86 (2.3)	0.66 (1.9)	27.21 (1.7)	0.2 (0.7)	1.9 (0.4)	0.18 (0.6)	1.78 (0.4)
Araria	0.5 (1.6)	18.7 (1.3)	0.53 (1.5)	19.64 (1.2)	0.2 (0.7)	1.2 (0.3)	0.21 (0.7)	1.26 (0.3)
Katihar	1.88 (6.1)	51.08 (3.7)	4.42 (12.9)	226.94 (14.3)	0.38 (1.4)	2.85 (0.7)	0.19 (0.6)	1.45 (0.3)
Bihar	31.07 (100)	1396.39 (100)	34.34 (100)	1591.58 (100)	27.61 (100)	427.61 (100)	29.15 (100)	433.44 (100)

Note : Figure in parentheses denotes percentage

Source : Department of Horticulture, GoB

(Contd.)

Table A 3.7 : District-wise Area and Production of Important Fruits (2017-18 and 2018-19) (Contd.)

(Area in '000 hectare/Production in '000 tonnes)

District	Litchi				Mango			
	2017-18		2018-19		2017-18		2018-19	
	Area	Production	Area	Production	Area	Production	Area	Production
Patna					4.5 (2.9)	52.92 (3.5)	7.73 (4.88)	73.76 (4.68)
Nalanda					2.91 (1.9)	30.4 (2)	2.95 (1.86)	30.79 (1.95)
Bhojpur					4.7 (3.1)	47.3 (3.1)	3.57 (2.25)	35.95 (2.28)
Buxar					2.63 (1.7)	26.57 (1.7)	2.75 (1.73)	27.3 (1.73)
Rohtas					6 (3.9)	61.87 (4)	5.83 (3.68)	59.97 (3.8)
Kaimur					3.42 (2.2)	34.4 (2.2)	3.42 (2.16)	34.5 (2.19)
Gaya					1.41 (0.9)	14.55 (0.9)	1.43 (0.9)	14.73 (0.93)
Jehanabad					0.41 (0.3)	4.23 (0.3)	0.41 (0.26)	4.19 (0.27)
Arwal					0.5 (0.3)	4.5 (0.3)	0.49 (0.31)	4.42 (0.28)
Nawada					1.13 (0.7)	10.25 (0.7)	0.9 (0.57)	8.65 (0.55)
Aurangabad					0.99 (0.6)	10.8 (0.7)	0.78 (0.49)	8.53 (0.54)
Saran			1.11 (3.11)	9.03 (2.93)	5.18 (3.4)	51.26 (3.3)	5.18 (3.27)	51.26 (3.25)
Siwan	1.21 (3.6)	8.63 (3.1)	1.21 (3.38)	8.67 (2.82)	2.56 (1.7)	28.65 (1.9)	2.57 (1.62)	28.7 (1.82)
Gopalganj	1 (3)	8.5 (3)	0.99 (2.76)	8.42 (2.74)	3.11 (2)	34 (2.2)	3.43 (2.16)	35.22 (2.23)
W. Champaran	2.15 (6.5)	11.77 (4.2)	2.2 (6.14)	12.05 (3.92)	7.35 (4.8)	72.85 (4.7)	7.4 (4.67)	73.34 (4.65)
E. Champaran	2.51 (7.5)	15.41 (5.5)	3.59 (10.02)	22.51 (7.32)	11.23 (7.3)	111.1 (7.2)	12.04 (7.59)	128.81 (8.17)
Muzaffarpur	10.1 (30.5)	132.69 (47)	11.2 (31.25)	147.7 (48.04)	10.57 (6.9)	113.52 (7.4)	10.57 (6.67)	113.5 (7.2)
Sitamarhi	2.31 (6.9)	17.49 (6.2)	2.31 (6.46)	17.49 (5.69)	5.3 (3.5)	51.58 (3.4)	5.41 (3.41)	52.59 (3.33)
Sheohar	1.03 (3.1)	7 (2.5)	1.03 (2.87)	7 (2.28)	2.71 (1.8)	27.2 (1.8)	2.71 (1.71)	27.2 (1.72)
Vaishali	3.7 (11.1)	21.67 (7.7)	3.82 (10.67)	22.13 (7.19)	8.46 (5.5)	85.9 (5.6)	8.46 (5.34)	85.96 (5.45)
Darbhanga	0.72 (2.2)	3.69 (1.3)	0.89 (2.49)	4.41 (1.43)	13.56 (8.8)	140.51 (9.2)	14.27 (9)	148.61 (9.42)
Madhubani	0.8 (2.4)	5.42 (1.9)	0.75 (2.09)	4.21 (1.37)	6.2 (4)	61.78 (4)	6.2 (3.91)	61.9 (3.92)
Samastipur	1.51 (4.5)	10.38 (3.7)	1.52 (4.23)	10.48 (3.41)	10.65 (6.9)	99.31 (6.5)	10.65 (6.72)	99.41 (6.3)
Begusarai	0.52 (1.6)	2.84 (1)	0.5 (1.4)	2.89 (0.94)	4.3 (2.8)	42.48 (2.8)	4.2 (2.65)	41.49 (2.63)
Munger	0.3 (0.9)	1.77 (0.6)	0.3 (0.84)	1.84 (0.6)	1.3 (0.8)	16.41 (1.1)	1.4 (0.88)	18.51 (1.17)
Sheikhpura	0 (0)	0 (0)			0.71 (0.5)	7.54 (0.5)	0.67 (0.42)	7.02 (0.45)
Lakhisarai	0.06 (0.2)	0.35 (0.1)	0.06 (0.16)	0.36 (0.12)	0.59 (0.4)	5.09 (0.3)	0.55 (0.35)	5.82 (0.37)
Jamui	0.1 (0.3)	1.18 (0.4)	0.1 (0.28)	1.22 (0.4)	1.16 (0.8)	10.53 (0.7)	1.17 (0.74)	11.77 (0.75)
Khagaria	0.3 (0.9)	2.12 (0.8)	0.3 (0.84)	2.22 (0.72)	1.71 (1.1)	16.58 (1.1)	1.6 (1.01)	15.02 (0.95)
Bhagalpur	0.6 (1.8)	4.1 (1.5)	0.6 (1.68)	4.1 (1.33)	7.9 (5.1)	73.09 (4.8)	8.1 (5.11)	74.1 (4.7)
Banka	0.1 (0.3)	0.3 (0.1)	0.1 (0.28)	0.3 (0.1)	6.5 (4.2)	52.1 (3.4)	6.5 (4.1)	52.1 (3.3)
Saharsa	0.62 (1.9)	4.78 (1.7)	0.61 (1.71)	4.8 (1.56)	2.24 (1.5)	23.4 (1.5)	2.34 (1.48)	23.5 (1.49)
Supaul	0.11 (0.3)	0.74 (0.3)	0.12 (0.35)	0.86 (0.28)	1.37 (0.9)	13.73 (0.9)	1.59 (1.01)	15.89 (1.01)
Madhepura	0.26 (0.8)	1.83 (0.6)	0.21 (0.59)	1.47 (0.48)	2.52 (1.6)	22.97 (1.5)	2 (1.26)	18.1 (1.15)
Purnea	1.29 (3.9)	8.43 (3)	1.29 (3.6)	8.43 (2.74)	2.58 (1.7)	25.47 (1.7)	2.58 (1.62)	25.47 (1.61)
Kishanganj	0.4 (1.2)	2.1 (0.7)	0.38 (1.06)	2.01 (0.65)	0.81 (0.5)	7.6 (0.5)	0.8 (0.5)	7.52 (0.48)
Araria	0.4 (1.2)	1.4 (0.5)	0.42 (1.17)	1.47 (0.48)	0.71 (0.5)	5.72 (0.4)	0.74 (0.47)	6.01 (0.38)
Katihar	1.13 (3.4)	7.67 (2.7)	0.21 (0.59)	1.49 (0.48)	3.64 (2.4)	35.5 (2.3)	5.15 (3.25)	45.83 (2.91)
Bihar	33.3 (100)	282.27 (100)	35.81 (100)	307.58 (100)	153.46 (100)	1533.6 (100)	158.5 (100)	1577.43 (100)

Note : Figure in parentheses denotes percentage

Source : Department of Horticulture, GoB

Table A 3.8 : District-wise Area and Production of Important Vegetables (2017-18 and 2018-19)

(Area in '000 hectare/Production in '000 tonnes)

District	Potato				Onion			
	2017-18		2018-19		2017-18		2018-19	
	Area	Production	Area	Production	Area	Production	Area	Production
Patna	17.8 (5.8)	512.39 (6.6)	29.88 (9.3)	860.19 (10.5)	2.98 (5.5)	72.21 (5.7)	3 (5.3)	72.9 (5.6)
Nalanda	24 (7.9)	691.98 (8.9)	24.33 (7.6)	701.35 (8.6)	5.97 (11.1)	159.2 (12.6)	6.03 (10.7)	165.2 (12.6)
Bhojpur	8.8 (2.9)	242 (3.1)	5.63 (1.7)	154.88 (1.9)	1.2 (2.2)	26 (2.1)	1.5 (2.7)	32.5 (2.5)
Buxar	3 (1)	81 (1)	3.1 (1)	84.9 (1)	0.8 (1.5)	20.01 (1.6)	0.84 (1.5)	21.8 (1.7)
Rohtas	11.45 (3.8)	296 (3.8)	12.31 (3.8)	340 (4.2)	1.27 (2.4)	28.88 (2.3)	1.49 (2.6)	33.1 (2.5)
Kaimur	3.23 (1.1)	84.23 (1.1)	3.23 (1)	48.91 (0.6)	1.01 (1.9)	20.95 (1.7)	1.01 (1.8)	13.54 (1)
Gaya	10.9 (3.6)	10.9 (0.1)	11.21 (3.5)	11.21 (0.1)	1.41 (2.6)	28 (2.2)	1.45 (2.6)	28.1 (2.1)
Jehanabad	2.81 (0.9)	73.85 (1)	3.5 (1.1)	92.05 (1.1)	0.52 (1)	13.52 (1.1)	0.55 (1)	14.41 (1.1)
Arwal	2.5 (0.8)	67.16 (0.9)	2.5 (0.8)	67.16 (0.8)	0.4 (0.7)	9.9 (0.8)	0.38 (0.7)	9.62 (0.7)
Nawada	4.85 (1.6)	115 (1.5)	5 (1.6)	118.55 (1.5)	1.04 (1.9)	22.45 (1.8)	1.1 (1.9)	23.75 (1.8)
Aurangabad	5.17 (1.7)	133.33 (1.7)	4.08 (1.3)	105.33 (1.3)	0.88 (1.6)	19.91 (1.6)	0.67 (1.2)	15.33 (1.2)
Saran	13.6 (4.5)	353.24 (4.6)	13.62 (4.2)	280.85 (3.4)	1.01 (1.9)	18.25 (1.4)	1.02 (1.8)	18.24 (1.4)
Siwan	9.8 (3.2)	291.44 (3.8)	9.86 (3.1)	293.1 (3.6)	0.95 (1.8)	22.17 (1.7)	0.95 (1.7)	22.17 (1.7)
Gopalganj	12.8 (4.2)	307.2 (4)	12.01 (3.7)	288.71 (3.5)	0.75 (1.4)	18.6 (1.5)	0.92 (1.6)	18.95 (1.4)
W. Champaran	12 (3.9)	323.62 (4.2)	12.5 (3.9)	337.11 (4.1)	3 (5.6)	77.4 (6.1)	3.1 (5.5)	79 (6)
E. Champaran	10.7 (3.5)	299.6 (3.9)	13.23 (4.1)	377.71 (4.6)	2.32 (4.3)	57.3 (4.5)	2.51 (4.4)	53.21 (4.1)
Muzaffarpur	15.41 (5.1)	231.12 (3)	15.35 (4.8)	241 (3)	2.69 (5)	62.32 (4.9)	2.9 (5.1)	63.57 (4.8)
Sitamarhi	5.12 (1.7)	137.09 (1.8)	5.12 (1.6)	137.09 (1.7)	1.3 (2.4)	32.58 (2.6)	1.37 (2.4)	34.09 (2.6)
Sheohar	3.21 (1.1)	83.87 (1.1)	3.22 (1)	83.94 (1)	0.7 (1.3)	17.35 (1.4)	0.7 (1.2)	17.4 (1.3)
Vaishali	12 (3.9)	351.04 (4.5)	13.41 (4.2)	391.34 (4.8)	2.25 (4.2)	55.05 (4.3)	2.84 (5)	69.35 (5.3)
Darbhanga	10.02 (3.3)	285.82 (3.7)	13.03 (4)	371.56 (4.6)	1 (1.9)	25 (2)	1.2 (2.1)	30 (2.3)
Madhubani	10.8 (3.5)	289 (3.7)	10.6 (3.3)	286 (3.5)	1 (1.9)	22 (1.7)	0.97 (1.7)	21.8 (1.7)
Samastipur	12 (3.9)	326.09 (4.2)	12.01 (3.7)	326.15 (4)	1.4 (2.6)	30.46 (2.4)	1.39 (2.5)	30.4 (2.3)
Begusarai	8.5 (2.8)	238 (3.1)	9 (2.8)	252.1 (3.1)	1.8 (3.3)	38.16 (3)	1.85 (3.3)	41.06 (3.1)
Munger	7.2 (2.4)	160.05 (2.1)	7.2 (2.2)	170.12 (2.1)	1.1 (2)	26.9 (2.1)	1.12 (2)	25.31 (1.9)
Sheikhpura	3.25 (1.1)	92.63 (1.2)	3.02 (0.9)	86.13 (1.1)	1.31 (2.4)	29.07 (2.3)	1.4 (2.5)	30.73 (2.3)
Lakhisarai	3.11 (1)	58.6 (0.8)	3.1 (1)	57.99 (0.7)	0.35 (0.7)	8.84 (0.7)	0.36 (0.6)	8.96 (0.7)
Jamui	2.61 (0.9)	64.08 (0.8)	2.55 (0.8)	64.57 (0.8)	0.81 (1.5)	21.27 (1.7)	0.8 (1.4)	20.07 (1.5)
Khagaria	4.11 (1.3)	108.92 (1.4)	4.11 (1.3)	108.55 (1.3)	0.8 (1.5)	17.39 (1.4)	0.8 (1.4)	17.4 (1.3)
Bhagalpur	9.85 (3.2)	262.88 (3.4)	9.83 (3.1)	263.26 (3.2)	1.61 (3)	40.16 (3.2)	1.53 (2.7)	38.24 (2.9)
Banka	4.9 (1.6)	125.7 (1.6)	4.9 (1.5)	125.99 (1.5)	0.71 (1.3)	15.72 (1.2)	0.71 (1.3)	15.75 (1.2)
Saharsa	5.72 (1.9)	151.97 (2)	5.72 (1.8)	151.97 (1.9)	0.62 (1.1)	15.38 (1.2)	0.62 (1.1)	15.38 (1.2)
Supaul	4.73 (1.6)	121.84 (1.6)	5.52 (1.7)	133.3 (1.6)	0.42 (0.8)	8.95 (0.7)	0.49 (0.9)	9.79 (0.7)
Madhepura	6.64 (2.2)	175.46 (2.3)	5.4 (1.7)	145.04 (1.8)	0.75 (1.4)	16.95 (1.3)	1 (1.8)	22.58 (1.7)
Purnea	5.15 (1.7)	135.98 (1.8)	5.16 (1.6)	136.02 (1.7)	1.8 (3.3)	42.5 (3.4)	1.8 (3.2)	42.5 (3.2)
Kishanganj	4.51 (1.5)	118.14 (1.5)	4.4 (1.4)	100.23 (1.2)	1.41 (2.6)	31.65 (2.5)	1.42 (2.5)	33.1 (2.5)
Araria	4.56 (1.5)	111.74 (1.4)	4.79 (1.5)	117.33 (1.4)	1.5 (2.8)	32.31 (2.6)	1.58 (2.8)	33.93 (2.6)
Katihar	7.98 (2.6)	227.85 (2.9)	8.48 (2.6)	242.24 (3)	2.93 (5.5)	62.44 (4.9)	3.15 (5.6)	68.25 (5.2)
Bihar	304.78 (100)	7740.79 (100)	321.88 (100)	8153.91 (100)	53.77 (100)	1267.18 (100)	56.5 (100)	1311.45 (100)

Note : Figure in parentheses denotes percentage

Source : Department of Horticulture, GoB

(Contd.)

Table A 3.8 : District-wise Area and Production of Important Vegetables (2017-18 and 2018-19) (Contd.)

(Area in '000 hectare/Production in '000 tonnes)

District	Brinjal				Cauliflower			
	2017-18		2018-19		2017-18		2018-19	
	Area	Production	Area	Production	Area	Production	Area	Production
Patna	2.15 (3.7)	55.19 (4.4)	3.73 (6.1)	95.87 (7.3)	4.48 (7.2)	1.53 (0.2)	7.58 (11.2)	2.59 (0.3)
Nalanda	7.21 (12.4)	148.12 (11.9)	6.86 (11.2)	141.14 (10.7)	3.15 (5.1)	60.87 (6.5)	3.33 (4.9)	64.39 (6.2)
Bhojpur	1.2 (2.1)	28.9 (2.3)	0.92 (1.5)	22.25 (1.7)	1.11 (1.8)	21.7 (2.3)	0.89 (1.3)	17.36 (1.7)
Buxar	0.82 (1.4)	17.16 (1.4)	0.64 (1)	13.5 (1)	0.53 (0.9)	9.6 (1)	0.56 (0.8)	10.09 (1)
Rohtas	1.06 (1.8)	19.98 (1.6)	1.33 (2.2)	24.97 (1.9)	1.38 (2.2)	23.21 (2.5)	1.73 (2.6)	29.01 (2.8)
Kaimur	0.61 (1)	14.51 (1.2)	0.61 (1)	8.32 (0.6)	0.81 (1.3)	13.62 (1.5)	0.81 (1.2)	8.96 (0.9)
Gaya	1.6 (2.8)	3.88 (0.3)	1.62 (2.6)	1.62 (0.1)	2 (3.2)	2 (0.2)	2.02 (3)	2.02 (0.2)
Jehanabad	0.72 (1.2)	14.09 (1.1)	0.73 (1.2)	14.27 (1.1)	0.52 (0.8)	10.01 (1.1)	0.52 (0.8)	10.09 (1)
Arwal	0.41 (0.7)	9.74 (0.8)	0.41 (0.7)	9.74 (0.7)	0.4 (0.6)	8.1 (0.9)	0.4 (0.6)	8.1 (0.8)
Nawada	1.85 (3.2)	37 (3)	1.9 (3.1)	38 (2.9)	1.88 (3)	30 (3.2)	1.85 (2.7)	29.6 (2.9)
Aurangabad	1.11 (1.9)	22.53 (1.8)	0.92 (1.5)	18.29 (1.4)	1.25 (2)	25.18 (2.7)	0.99 (1.5)	19.89 (1.9)
Saran	1.81 (3.1)	38.78 (3.1)	1.82 (3)	38.8 (2.9)	2.91 (4.7)	38.17 (4.1)	2.92 (4.3)	38.24 (3.7)
Siwan	1.6 (2.7)	36 (2.9)	1.69 (2.8)	37.96 (2.9)	1.6 (2.6)	28.4 (3)	1.59 (2.3)	28.23 (2.7)
Gopalganj	1.42 (2.4)	30.5 (2.5)	1.43 (2.3)	30.8 (2.3)	1.6 (2.6)	44.9 (4.8)	1.6 (2.4)	44.9 (4.3)
W. Champaran	2 (3.4)	45 (3.6)	2.05 (3.3)	46.13 (3.5)	3.05 (4.9)	56.16 (6)	3.1 (4.6)	57.08 (5.5)
E. Champaran	1.7 (2.9)	38.58 (3.1)	1.71 (2.8)	38.99 (3)	3.15 (5.1)	42.56 (4.5)	3.3 (4.9)	45.04 (4.3)
Muzaffarpur	2.91 (5)	58.2 (4.7)	3 (4.9)	59.07 (4.5)	-	-	-	-
Sitamarhi	1.31 (2.3)	27.15 (2.2)	1.58 (2.6)	32.58 (2.5)	1.41 (2.3)	24.41 (2.6)	1.77 (2.6)	30.51 (2.9)
Sheohar	0.7 (1.2)	14.06 (1.1)	0.7 (1.1)	14.06 (1.1)	0.81 (1.3)	15.23 (1.6)	0.82 (1.2)	15.25 (1.5)
Vaishali	3.21 (5.5)	96.2 (7.7)	3.86 (6.3)	111.92 (8.5)	4.5 (7.2)	74.91 (8)	5.74 (8.4)	95.38 (9.2)
Darbhanga	2.55 (4.4)	52 (4.2)	3.18 (5.2)	65.66 (5)	1.65 (2.7)	29.39 (3.1)	2.22 (3.3)	39.56 (3.8)
Madhubani	2.1 (3.6)	42.9 (3.5)	2.3 (3.7)	46.15 (3.5)	2.6 (4.2)	45.65 (4.9)	2.59 (3.8)	45.6 (4.4)
Samastipur	2.31 (4)	58.53 (4.7)	2.31 (3.8)	58.52 (4.4)	3.01 (4.9)	59.74 (6.4)	3.01 (4.4)	59.74 (5.8)
Begusarai	2.82 (4.8)	58.94 (4.7)	2.72 (4.4)	68.08 (5.2)	1.72 (2.8)	33.35 (3.6)	1.72 (2.5)	35.02 (3.4)
Munger	0.79 (1.4)	18.97 (1.5)	0.79 (1.3)	19.84 (1.5)	0.81 (1.3)	10.78 (1.2)	0.81 (1.2)	11.01 (1.1)
Sheikhpura	0.23 (0.4)	5.09 (0.4)	0.21 (0.3)	4.77 (0.4)	0.16 (0.3)	3.56 (0.4)	0.15 (0.2)	3.28 (0.3)
Lakhisarai	-	-	0.2 (0.3)	4.32 (0.3)	-	-	0.28 (0.4)	5.21 (0.5)
Jamui	0.61 (1)	11.88 (1)	0.61 (1)	11.85 (0.9)	0.4 (0.6)	7.24 (0.8)	0.39 (0.6)	7.39 (0.7)
Khagaria	1.21 (2.1)	29.8 (2.4)	1.15 (1.9)	29 (2.2)	1.31 (2.1)	21.58 (2.3)	1.31 (1.9)	21.49 (2.1)
Bhagalpur	1.7 (2.9)	34 (2.7)	1.65 (2.7)	33.5 (2.5)	1.7 (2.7)	29 (3.1)	1.7 (2.5)	29 (2.8)
Banka	0.8 (1.4)	17.4 (1.4)	0.8 (1.3)	17.42 (1.3)	0.81 (1.3)	12.57 (1.3)	0.81 (1.2)	12.43 (1.2)
Saharsa	1.32 (2.3)	28.93 (2.3)	1.33 (2.2)	28.93 (2.2)	1.82 (2.9)	31.68 (3.4)	1.82 (2.7)	31.68 (3.1)
Supaul	0.63 (1.1)	13.67 (1.1)	0.74 (1.2)	15.85 (1.2)	0.74 (1.2)	12.31 (1.3)	0.86 (1.3)	13.49 (1.3)
Madhepura	1.6 (2.7)	32.03 (2.6)	1.6 (2.6)	33.75 (2.6)	2.28 (3.7)	39.05 (4.2)	1.82 (2.7)	32.3 (3.1)
Purnea	1.11 (1.9)	20.92 (1.7)	1.11 (1.8)	20.98 (1.6)	2.11 (3.4)	35.37 (3.8)	2.11 (3.1)	35.37 (3.4)
Kishanganj	0.62 (1.1)	12.65 (1)	0.6 (1)	12.05 (0.9)	0.91 (1.5)	16.09 (1.7)	0.8 (1.2)	14.09 (1.4)
Araria	0.71 (1.2)	13.92 (1.1)	0.74 (1.2)	14.62 (1.1)	0.81 (1.3)	14.99 (1.6)	0.85 (1.3)	15.73 (1.5)
Katihar	1.73 (3)	34.54 (2.8)	1.82 (3)	36.33 (2.8)	2.68 (4.3)	2.66 (0.3)	3.15 (4.6)	66.56 (6.4)
Bihar	58.22 (100)	1241.71 (100)	61.36 (100)	1319.88 (100)	62.04 (100)	935.56 (100)	67.9 (100)	1035.69 (100)

Note : Figure in parentheses denotes percentage

Source : Department of Horticulture, GoB

Table A 3.9 : District-wise Achievement for Livestock-Related Services (2017-18 and 2018-19)

(in lakh)

District	Animals Treated		Immunization		Artificial Insemination	
	2017-18	2018-19	2017-18	2018-19	2017-18	2018-19
Patna	2.4	2.6	16.52	17.2	1.32	1.35
Nalanda	1.6	1.72	13.48	14.23	0.72	0.72
Bhojpur	1.19	1.11	10.95	11.62	1.44	1.6
Buxar	0.54	0.69	8.98	10.19	1.01	0.97
Rohtas	1.3	1.23	14.91	15.75	0.86	0.99
Kaimur	0.55	0.55	11.07	11.05	0.51	0.47
Gaya	2.2	2.27	26.94	28.3	0.72	0.85
Jehanabad	0.73	0.76	5.5	5.84	0.32	0.38
Arwal	0.35	0.31	3.22	3.38	0.19	0.24
Nawada	1.1	1.52	11.71	12.43	0.26	0.28
Aurangabad	1.37	1.36	15.78	16.6	0.33	0.4
Saran	1.95	1.63	13.4	14.14	0.8	0.94
Siwan	0.83	0.8	9.8	12.92	0.63	0.74
Gopalganj	0.95	1.14	10.81	8.82	1.21	1.37
W. Champaran	1.18	0.88	18.21	19.16	0.51	0.74
E. Champaran	1.76	1.65	20.38	21.44	0.93	1.17
Muzaffarpur	1.94	1.97	18.11	19.01	2.37	2.49
Sitamarhi	1.15	0.76	9.83	10.33	0.53	0.65
Sheohar	0.28	0.19	2.53	2.63	0.41	0.44
Vaishali	1.09	1.18	10.68	11.35	1.47	1.45
Darbhanga	1.58	1.5	13.15	13.89	0.71	0.9
Madhubani	1.24	1.15	22.15	23.33	0.53	0.74
Samastipur	2.91	2.75	19.16	20.18	3.31	3.18
Begusarai	1.74	1.94	12.76	13.33	2.32	2.51
Munger	0.82	0.82	6.13	6.48	0.55	0.58
Sheikhpura	0.63	0.67	3.03	3.19	0.13	0.1
Lakhisarai	0.54	0.38	4.98	5.28	0.52	0.48
Jamui	0.77	0.66	15.18	16.05	0.08	0.09
Khagaria	0.7	0.75	9.22	9.75	1.12	1.29
Bhagalpur	1.26	1.64	19.53	21.15	0.59	0.69
Banka	0.94	1.21	18.91	19.96	0.59	0.57
Saharsa	1.06	1	12.84	13.55	0.27	0.32
Supaul	1.18	0.67	21.38	22.5	0.13	0.24
Madhepura	1.23	1	16.63	17.49	0.18	0.36
Purnea	1.4	1.52	17.81	18.75	0.23	0.24
Kishanganj	0.56	0.46	12.93	13.64	0.07	0.05
Araria	0.72	0.68	28.24	29.77	0.16	0.19
Katihar	0.93	0.96	19.87	20.98	0.19	0.24
Bihar	44.67	44.08	526.71	555.66	28.23	31.01

Source : Directorate of Animal Husbandry, GoB

Table A 3.10 : District-wise Production of Fish and Fish Seeds (2016-17 to 2018-19)

District	Fish Production ('000 tonnes)	Fish Seeds (Lakh)	Fish Production ('000 tonnes)	Fish Seeds (Lakh)	Fish Production ('000 tonnes)	Fish Seeds (Lakh)
	2016-17		2017-18		2018-19	
Patna	15.63	225.00	17.43	467.80	18.03	468.80
Nalanda	17.62	360.00	20.33	365.25	22.20	365.50
Bhojpur	10.07	60.05	12.20	62.50	12.20	62.60
Buxar	6.92	84.00	6.69	85.02	6.70	69.00
Rohtas	6.78	175.00	8.44	178.30	9.50	210.00
Kaimur	9.98	125.00	12.51	127.50	13.75	190.25
Gaya	6.50	150.00	8.07	152.15	8.10	155.00
Jehanabad	1.26	15.00	1.26	16.05	1.25	17.00
Arwal	1.37	20.00	1.26	21.03	1.25	37.60
Nawada	5.50	1.00	4.90	1.50	4.00	1.20
Aurangabad	8.13	70.00	9.15	75.00	9.10	80.00
Saran	9.71	56.80	11.25	57.25	11.05	55.00
Siwan	6.22	20.00	7.27	21.02	7.21	30.00
Gopalganj	9.41	16.25	10.80	17.30	11.50	17.60
W. Champaran	23.20	461.00	25.02	462.15	29.02	275.00
E. Champaran	50.00	725.00	51.62	731.02	51.20	231.00
Muzaffarpur	21.75	520.00	25.60	520.00	22.70	375.00
Sitamarhi	12.25	598.00	12.41	599.70	13.11	810.00
Sheohar	2.20	6.00	2.62	35.00	2.55	55.00
Vaishali	15.09	96.00	18.90	97.25	19.00	28.50
Darbhanga	44.00	1000.00	54.00	1750.00	54.80	1748.00
Madhubani	51.80	1600.00	65.65	1625.65	68.70	1630.00
Samastipur	14.02	320.00	14.24	320.30	14.35	405.00
Begusarai	21.81	0.00	24.10	0.00	24.51	32.75
Munger	9.40	20.00	9.20	18.00	9.11	22.00
Sheikhpura	2.93	10.00	2.91	15.00	2.95	15.00
Lakhisarai	7.90	0.00	6.75	0.00	6.74	24.00
Jamui	2.35	1.50	2.51	2.00	2.25	17.60
Khagaria	20.00	120.00	23.89	124.30	25.31	127.35
Bhagalpur	13.61	375.00	14.09	377.25	14.25	373.20
Banka	9.91	0.00	9.98	0.00	9.95	298.80
Saharsa	6.85	10.00	8.82	11.50	8.83	13.50
Supaul	8.10	2.20	12.95	10.00	12.90	13.00
Madhepura	3.82	1.25	4.30	15.00	4.70	15.25
Purnea	12.10	70.00	16.40	160.00	16.60	315.00
Kishanganj	6.19	115.00	5.75	117.25	5.76	121.00
Araria	10.85	33.50	13.13	95.00	13.50	80.00
Katihar	23.85	470.00	31.45	472.25	33.50	501.00
Bihar	509.08	7932.55	587.85	9206.29	602.13	9286.50

Source : Department of Animal Husbandry and Fisheries Resources, GoB

Table A 3.11 : District-wise Milk Production in Bihar (2017-18)

('000 tonnes)

District	Crossbred Cow	Local Cow	Total Cow	Buffalo	Total (Cow+Buffalo)	Goat	Total Production
Patna	285.03 (9.8)	17.38 (0.7)	302.41 (5.6)	196.06 (5.4)	498.47 (5.5)	3.9 (1.9)	502.37 (5.4)
Nalanda	118.36 (4.1)	28.14 (1.1)	146.49 (2.7)	213.99 (5.9)	360.49 (4)	3.16 (1.5)	363.65 (3.9)
Bhojpur	138.97 (4.8)	24.48 (1)	163.45 (3)	136.9 (3.8)	300.35 (3.3)	2.75 (1.3)	303.1 (3.3)
Rohtas	71.19 (2.4)	62.37 (2.5)	133.56 (2.5)	159.29 (4.4)	292.85 (3.2)	3.12 (1.5)	295.97 (3.2)
Kaimur	29.45 (1)	50.54 (2)	79.99 (1.5)	118.35 (3.3)	198.33 (2.2)	1.08 (0.5)	199.41 (2.2)
Buxar	63.93 (2.2)	35.42 (1.4)	99.36 (1.8)	92.98 (2.6)	192.34 (2.1)	1.23 (0.6)	193.56 (2.1)
Gaya	40.91 (1.4)	144.68 (5.8)	185.59 (3.4)	132.16 (3.7)	317.75 (3.5)	7.33 (3.5)	325.08 (3.5)
Jehanabad	25.9 (0.9)	13 (0.5)	38.9 (0.7)	64.59 (1.8)	103.49 (1.1)	1.34 (0.6)	104.82 (1.1)
Arwal	30.26 (1)	2.88 (0.1)	33.14 (0.6)	41.53 (1.1)	74.67 (0.8)	1.09 (0.5)	75.75 (0.8)
Nawada	18.79 (0.6)	68.63 (2.7)	87.42 (1.6)	60.83 (1.7)	148.25 (1.6)	3.49 (1.7)	151.74 (1.6)
Aurangabad	34.99 (1.2)	94.66 (3.8)	129.66 (2.4)	106.86 (3)	236.52 (2.6)	4.8 (2.3)	241.31 (2.6)
Saran	127.62 (4.4)	63.17 (2.5)	190.79 (3.5)	90.98 (2.5)	281.77 (3.1)	2.94 (1.4)	284.71 (3.1)
Siwan	54.81 (1.9)	64.82 (2.6)	119.63 (2.2)	80.87 (2.2)	200.5 (2.2)	3.44 (1.7)	203.94 (2.2)
Gopalganj	39.27 (1.3)	42.84 (1.7)	82.11 (1.5)	62.77 (1.7)	144.88 (1.6)	3.26 (1.6)	148.14 (1.6)
W. Champaran	61.83 (2.1)	93.53 (3.7)	155.35 (2.9)	101.33 (2.8)	256.68 (2.8)	9.04 (4.4)	265.72 (2.9)
E. Champaran	40.22 (1.4)	108.95 (4.4)	149.17 (2.8)	150.05 (4.1)	299.23 (3.3)	11.13 (5.4)	310.36 (3.4)
Muzaffarpur	194.68 (6.7)	19.5 (0.8)	214.19 (4)	138.27 (3.8)	352.45 (3.9)	8.92 (4.3)	361.37 (3.9)
Sitamarhi	24.46 (0.8)	17.39 (0.7)	41.86 (0.8)	89.1 (2.5)	130.95 (1.4)	6.56 (3.2)	137.51 (1.5)
Sheohar	12.26 (0.4)	8.23 (0.3)	20.49 (0.4)	22.35 (0.6)	42.84 (0.5)	1.79 (0.9)	44.63 (0.5)
Vaishali	180.5 (6.2)	5.01 (0.2)	185.5 (3.4)	81.8 (2.3)	267.31 (3)	4.54 (2.2)	271.85 (2.9)
Darbhanga	53.14 (1.8)	64.72 (2.6)	117.87 (2.2)	130.3 (3.6)	248.17 (2.7)	5.2 (2.5)	253.37 (2.7)
Madhubani	9.85 (0.3)	122.01 (4.9)	131.86 (2.4)	151.68 (4.2)	283.54 (3.1)	7.12 (3.4)	290.67 (3.1)
Samastipur	338.76 (11.6)	12.38 (0.5)	351.14 (6.5)	111.42 (3.1)	462.56 (5.1)	5.78 (2.8)	468.34 (5.1)
Begusarai	294.73 (10.1)	6.23 (0.2)	300.96 (5.6)	52.66 (1.5)	353.62 (3.9)	3.76 (1.8)	357.38 (3.9)
Munger	74.02 (2.5)	40.08 (1.6)	114.09 (2.1)	36.01 (1)	150.1 (1.7)	3.42 (1.7)	153.53 (1.7)
Sheikhpura	28.06 (1)	13.3 (0.5)	41.35 (0.8)	28.56 (0.8)	69.91 (0.8)	1.1 (0.5)	71.01 (0.8)
Lakhisarai	61.33 (2.1)	16.73 (0.7)	78.06 (1.4)	34.61 (1)	112.67 (1.2)	1.48 (0.7)	114.16 (1.2)
Jamui	12.94 (0.4)	110.02 (4.4)	122.95 (2.3)	42.36 (1.2)	165.31 (1.8)	5.79 (2.8)	171.1 (1.9)
Khagaria	176.25 (6)	28.78 (1.2)	205.03 (3.8)	63.3 (1.7)	268.33 (3)	3.81 (1.8)	272.15 (2.9)
Bhagalpur	145.64 (5)	99.11 (4)	244.74 (4.5)	102.46 (2.8)	347.21 (3.8)	7.93 (3.8)	355.14 (3.8)
Banka	28.22 (1)	144.15 (5.8)	172.37 (3.2)	68.85 (1.9)	241.22 (2.7)	5.98 (2.9)	247.2 (2.7)
Saharsa	21.28 (0.7)	85.77 (3.4)	107.05 (2)	92.08 (2.5)	199.12 (2.2)	5.48 (2.6)	204.6 (2.2)
Supaul	2.51 (0.1)	121.44 (4.9)	123.95 (2.3)	220.23 (6.1)	344.18 (3.8)	7.15 (3.5)	351.33 (3.8)
Madhepura	18.39 (0.6)	89.76 (3.6)	108.15 (2)	91.55 (2.5)	199.7 (2.2)	5.94 (2.9)	205.65 (2.2)
Purnea	24.33 (0.8)	138.35 (5.5)	162.68 (3)	60.65 (1.7)	223.33 (2.5)	6.55 (3.2)	229.89 (2.5)
Kishanganj	13.87 (0.5)	120.76 (4.8)	134.63 (2.5)	29.49 (0.8)	164.13 (1.8)	6.33 (3.1)	170.46 (1.8)
Araria	7.81 (0.3)	164.8 (6.6)	172.61 (3.2)	105.61 (2.9)	278.22 (3.1)	30.3 (14.7)	308.53 (3.3)
Katihar	10.52 (0.4)	156.18 (6.2)	166.71 (3.1)	56.49 (1.6)	223.2 (2.5)	8.8 (4.3)	232 (2.5)
Bihar	2915.06 (100)	2500.21 (100)	5415.27 (100)	3619.37 (100)	9034.64 (100)	206.85 (100)	9241.49 (100)

Source : Department of Animal Husbandry and Fisheries Resources, GoB

Table A 3.12 : District-wise Milk Production in Bihar (2018-19)

('000 tonnes)

District	Crossbred Cow	Local Cow	Total Cow	Buffalo	Total (Cow +Buffalo)	Goat	Total Production
Patna	279.94 (9)	17.71 (0.7)	297.65 (5.2)	200.4 (5.2)	498.05 (5.2)	3.68 (1.7)	501.73 (5.1)
Nalanda	128.68 (4.2)	29.83 (1.1)	158.51 (2.8)	210.64 (5.5)	369.15 (3.8)	3.12 (1.5)	372.27 (3.8)
Bhojpur	149 (4.8)	25.69 (1)	174.69 (3)	138.52 (3.6)	313.21 (3.3)	2.44 (1.1)	315.65 (3.2)
Rohtas	79.9 (2.6)	67.34 (2.5)	147.24 (2.6)	162.28 (4.2)	309.52 (3.2)	3.05 (1.4)	312.57 (3.2)
Kaimur	31.95 (1)	52.04 (2)	83.99 (1.5)	120.85 (3.1)	204.84 (2.1)	1.23 (0.6)	206.07 (2.1)
Buxar	65.52 (2.1)	36.92 (1.4)	102.44 (1.8)	91.7 (2.4)	194.14 (2)	1.26 (0.6)	195.4 (2)
Gaya	45.53 (1.5)	154.07 (5.8)	199.6 (3.5)	141.77 (3.7)	341.37 (3.6)	7.14 (3.3)	348.51 (3.5)
Jehanabad	29.31 (0.9)	13.29 (0.5)	42.6 (0.7)	74.23 (1.9)	116.83 (1.2)	1.49 (0.7)	118.32 (1.2)
Arwal	34.54 (1.1)	3.11 (0.1)	37.65 (0.7)	45.14 (1.2)	82.79 (0.9)	1.06 (0.5)	83.85 (0.9)
Nawada	20.77 (0.7)	77.07 (2.9)	97.84 (1.7)	64.47 (1.7)	162.31 (1.7)	3.13 (1.5)	165.44 (1.7)
Aurangabad	42 (1.4)	96.14 (3.6)	138.14 (2.4)	115.04 (3)	253.18 (2.6)	4.19 (1.9)	257.37 (2.6)
Saran	147.81 (4.8)	63.65 (2.4)	211.46 (3.7)	92.64 (2.4)	304.1 (3.2)	3.11 (1.4)	307.21 (3.1)
Siwan	61.81 (2)	67.68 (2.5)	129.49 (2.3)	82.47 (2.1)	211.96 (2.2)	3.66 (1.7)	215.62 (2.2)
Gopalganj	41 (1.3)	48.78 (1.8)	89.78 (1.6)	66.82 (1.7)	156.6 (1.6)	3.16 (1.5)	159.76 (1.6)
W. Champaran	66.54 (2.1)	95.48 (3.6)	162.02 (2.8)	113.75 (3)	275.77 (2.9)	9.18 (4.3)	284.95 (2.9)
E. Champaran	43.8 (1.4)	112.22 (4.2)	156.02 (2.7)	172.32 (4.5)	328.34 (3.4)	11.77 (5.5)	340.11 (3.5)
Muzaffarpur	202.47 (6.5)	20.47 (0.8)	222.94 (3.9)	148.54 (3.9)	371.48 (3.9)	9.4 (4.4)	380.88 (3.9)
Sitamarhi	27 (0.9)	19.96 (0.8)	46.96 (0.8)	92.37 (2.4)	139.33 (1.5)	6.72 (3.1)	146.05 (1.5)
Sheohar	13.63 (0.4)	9.18 (0.3)	22.81 (0.4)	28.16 (0.7)	50.97 (0.5)	1.95 (0.9)	52.92 (0.5)
Vaishali	193.25 (6.2)	5.76 (0.2)	199.01 (3.5)	92.57 (2.4)	291.58 (3)	5.04 (2.3)	296.62 (3)
Darbhanga	57.85 (1.9)	66.08 (2.5)	123.93 (2.2)	133.57 (3.5)	257.5 (2.7)	5.31 (2.5)	262.81 (2.7)
Madhubani	10.45 (0.3)	130.07 (4.9)	140.52 (2.4)	167.55 (4.4)	308.07 (3.2)	6.92 (3.2)	314.99 (3.2)
Samastipur	357 (11.5)	13.2 (0.5)	370.2 (6.4)	116.61 (3)	486.81 (5.1)	6.4 (3)	493.21 (5)
Begusarai	306.8 (9.9)	6.48 (0.2)	313.28 (5.4)	55.36 (1.4)	368.64 (3.8)	3.73 (1.7)	372.37 (3.8)
Munger	84.85 (2.7)	42.87 (1.6)	127.72 (2.2)	42.43 (1.1)	170.15 (1.8)	3.79 (1.8)	173.94 (1.8)
Sheikhpura	29 (0.9)	14.65 (0.6)	43.65 (0.8)	26 (0.7)	69.65 (0.7)	1.17 (0.5)	70.82 (0.7)
Lakhisarai	63.74 (2.1)	18.08 (0.7)	81.82 (1.4)	38.2 (1)	120.02 (1.2)	1.69 (0.8)	121.71 (1.2)
Jamui	13.58 (0.4)	122.49 (4.6)	136.07 (2.4)	45.36 (1.2)	181.43 (1.9)	6.48 (3)	187.91 (1.9)
Khagaria	184.14 (5.9)	30.48 (1.1)	214.62 (3.7)	66 (1.7)	280.62 (2.9)	4.06 (1.9)	284.68 (2.9)
Bhagalpur	149.28 (4.8)	102.74 (3.9)	252.02 (4.4)	109.44 (2.8)	361.46 (3.8)	8.21 (3.8)	369.67 (3.8)
Banka	28 (0.9)	152.34 (5.7)	180.34 (3.1)	72.44 (1.9)	252.78 (2.6)	6.31 (2.9)	259.09 (2.6)
Saharsa	22.31 (0.7)	86.95 (3.3)	109.26 (1.9)	96.35 (2.5)	205.61 (2.1)	5.41 (2.5)	211.02 (2.1)
Supaul	2.74 (0.1)	127.44 (4.8)	130.18 (2.3)	241.99 (6.3)	372.17 (3.9)	6.8 (3.2)	378.97 (3.9)
Madhepura	21.38 (0.7)	94.34 (3.6)	115.72 (2)	101.08 (2.6)	216.8 (2.3)	5.92 (2.8)	222.72 (2.3)
Purnea	27 (0.9)	150.46 (5.7)	177.46 (3.1)	72.43 (1.9)	249.89 (2.6)	7.01 (3.3)	256.9 (2.6)
Kishanganj	15 (0.5)	134.93 (5.1)	149.93 (2.6)	30.91 (0.8)	180.84 (1.9)	7.23 (3.4)	188.07 (1.9)
Araria	8.83 (0.3)	172.95 (6.5)	181.78 (3.2)	117.07 (3)	298.85 (3.1)	33.64 (15.7)	332.49 (3.4)
Katihar	11.94 (0.4)	171.66 (6.5)	183.6 (3.2)	63.17 (1.6)	246.77 (2.6)	9.07 (4.2)	255.84 (2.6)
Bihar	3098.34 (100)	2654.6 (100)	5752.94 (100)	3850.64 (100)	9603.58 (100)	214.93 (100)	9818.51 (100)

Source : Department of Animal Husbandry and Fisheries Resources, GoB

Table A 3.13 : District-wise Consumption of Fertilizers in Bihar (2017-18)

('000 tonnes)

District	Urea	DAP	SSP	MOP	Ammonium Sulphate	Complex	Sub Total	N	P	K	Total (NPK)	Grand Total
Patna	75.9	15.9	3.6	1.6	1	6.1	104	39	9	1	49.6	153.7
Nalanda	99.5	24.5	8.4	1.6	0.7	10.6	145.3	52	15	2	69.5	214.8
Bhojpur	70.7	20.1	2.2	1.4	0.4	10.9	105.6	38	12	1	51.4	157
Buxar	60.1	14.7	1	1	0	11.2	88	32	9	1	42.5	130.6
Rohtas	111.5	25.8	8.6	3.1	0	21.8	170.8	59	19	4	82.6	253.4
Kaimur	61.3	16.2	4.3	0.9	0	10.3	93	33	10	1	44.4	137.3
Gaya	62.4	22.1	2.7	2.2	0	5.6	95	34	12	2	47.2	142.1
Jehanabad	21	3.6	0	0.4	0.2	0.8	26.2	11	2	0	12.7	38.9
Arwal	17.9	3.6	0.1	0.4	0	0.5	22.5	9	2	0	11	33.5
Nawada	25	5	1.3	0.2	0	1.9	33.4	13	3	0	15.9	49.3
Aurangabad	61.5	18.5	7.7	1.6	0	9.5	98.9	33	12	1	46.4	145.2
Saran	54.9	16.3	0.3	2.3	0	4.7	78.5	29	9	2	39.2	117.7
Siwan	45.6	9.5	0	0.8	0	4.1	60	23	5	1	29.2	89.2
Gopalganj	26	4.4	0.1	0.8	0	2.1	33.4	13	2	1	16.1	49.6
W. Champaran	71.4	29.3	1.6	12.2	3.3	8.4	126.2	40	16	8	63.7	189.9
E. Champaran	93.7	35	3.3	10.6	0.7	11.1	154.4	51	19	7	77.8	232.2
Muzaffarpur	80.8	27.9	1.8	13.9	0.1	8.4	132.8	44	15	9	67.7	200.6
Sitamarhi	43	12.7	0.7	5.1	0.6	6.3	68.4	23	7	4	34.2	102.6
Sheohar	8.7	2.2	0.1	0.8	0	0.6	12.3	5	1	0	6.2	18.5
Vaishali	70.2	36.4	2.4	14.4	5.9	8.6	137.9	41	19	9	69.9	207.9
Darbhanga	40.7	15.6	1.1	6	1.3	6.2	70.9	23	9	4	36	107
Madhubani	40.5	21.9	0.1	3.6	0.7	3.1	69.8	23	11	2	36.4	106.2
Samastipur	62.8	22.4	1.6	10.5	0.1	5.6	103	34	12	6	52.2	155.2
Begusarai	63.2	29.3	2.2	13.6	4	8.6	120.9	37	16	9	61.2	182.1
Munger	15.4	3.8	0.1	1.1	0	0.6	21	8	2	1	10.5	31.5
Sheikhpura	12.4	2.7	0.4	0.2	0	0.7	16.3	6	1	0	7.8	24.1
Lakhisarai	19.7	4.2	1.6	0	0	1.4	27	10	3	0	12.8	39.8
Jamui	45.6	14.4	1	2.1	0.1	4	67.2	24	8	2	33.7	101
Khagaria	75.2	24.4	1.1	13	1.5	7.7	122.9	41	13	8	62.1	184.9
Bhagalpur	38.2	11.4	0.7	3.5	0.4	3.2	57.4	20	6	2	28.8	86.2
Banka	37.3	13	0.1	8.9	0.3	4.7	64.3	20	7	6	33.3	97.6
Saharsa	40.5	19.7	0.1	10.2	0.1	9	79.5	24	11	7	41.4	120.9
Supaul	54.6	21.4	0.1	14.8	0.9	9.8	101.5	31	12	9	52.3	153.8
Madhepura	94.9	40.6	5.4	24.7	5.2	20.8	191.7	56	24	15	95.3	287
Purnea	20.6	9.1	0.7	2.8	0.2	2.5	35.8	12	5	2	18.2	54
Kishanganj	72.5	29.4	1.9	20.1	1.6	11	136.6	41	16	12	69.6	206.2
Araria	68.6	30.4	2.8	19.3	3.5	12.8	137.4	40	17	12	69.6	207
Katihar	75.7	24.8	0.7	15.3	0.3	6.9	123.7	41	13	9	62.9	186.6
Bihar	2039.5	682.3	72	244.9	32.8	262.2	3333.6	1113.2	386.2	161.8	1661.2	4994.9

Source : Department of Agriculture, GoB

Table A 3.14 : District-wise Consumption of Fertilizers in Bihar (2018-19)

('000 tonnes)

District	Urea	DAP	SSP	MOP	Ammonium Sulphate	Complex	Sub Total	N	P	K	Total (NPK)	Grand Total
Patna	49.62	10.35	0.42	0.33	0.52	5.17	66.41	25.72	5.95	0.43	32.11	98.52
Nalanda	59.66	13.05	2.78	1.41	0.80	7.83	85.53	31.33	8.23	1.24	40.80	126.32
Bhojpur	44.04	8.51	0.70	0.61	0.28	8.01	62.16	23.42	5.66	0.44	29.52	91.67
Buxar	31.39	6.26	0.45	0.45	0.43	12.67	51.64	18.15	5.53	0.36	24.03	75.68
Rohtas	58.74	9.94	1.42	0.38	0.05	18.72	89.24	31.80	9.70	1.83	43.33	132.56
Kaimur	32.83	6.20	0.53	0.24	0.00	9.41	49.21	17.96	5.03	0.42	23.41	72.62
Gaya	35.93	7.73	0.62	0.10	0.00	2.77	47.16	18.47	4.21	0.06	22.75	69.91
Jehanabad	12.20	1.48	0.00	0.00	0.36	0.87	14.91	6.12	0.86	0.02	6.99	21.90
Arwal	10.54	0.90	0.00	0.10	0.00	0.22	11.76	5.05	0.45	0.07	5.58	17.34
Nawada	12.92	3.02	0.37	0.10	0.00	1.43	17.83	6.75	1.76	0.09	8.60	26.43
Aurangabad	36.46	7.17	2.21	0.16	0.00	6.24	52.24	19.27	4.95	0.17	24.39	76.63
Saran	39.02	13.64	0.25	1.79	0.00	8.79	63.49	22.08	8.19	1.24	31.52	95.00
Siwan	27.29	8.50	0.03	1.27	0.00	3.50	40.58	14.74	4.67	0.85	20.26	60.85
Gopalganj	18.10	2.90	0.22	0.52	0.00	2.04	23.79	9.24	1.78	0.36	11.39	35.18
W. Champaran	41.19	15.56	2.06	6.29	0.00	8.32	73.42	23.28	9.26	4.11	36.66	110.08
E. Champaran	61.92	15.09	1.53	6.65	0.45	8.52	94.17	32.72	9.30	4.54	46.56	140.73
Muzaffarpur	52.63	15.93	0.79	6.83	3.77	5.45	85.40	28.84	8.64	4.28	41.76	127.16
Sitamarhi	27.83	7.36	0.64	3.12	0.34	3.36	42.65	14.79	4.25	2.05	21.08	63.73
Sheohar	5.88	1.46	0.05	0.39	0.00	0.73	8.50	3.11	0.83	0.24	4.18	12.68
Vaishali	52.64	11.43	0.45	1.88	3.73	4.61	74.74	27.83	6.36	1.38	35.57	110.31
Darbhanga	27.33	10.04	0.63	3.60	1.38	3.42	46.40	15.20	5.58	2.47	23.25	69.66
Madhubani	21.36	10.00	0.05	3.34	0.83	2.33	37.91	12.19	5.13	2.16	19.49	57.40
Samastipur	44.09	13.89	0.68	5.82	0.51	5.96	70.97	23.88	7.95	3.93	35.76	106.73
Begusarai	47.74	18.58	0.44	6.38	2.63	8.72	84.49	27.40	10.60	4.18	42.19	126.68
Munger	8.57	2.20	0.00	0.16	0.00	0.54	11.47	4.45	1.12	0.10	5.66	17.13
Sheikhpura	11.24	2.99	0.32	0.27	0.00	1.29	16.10	5.94	1.72	0.21	7.87	23.97
Lakhisarai	8.48	1.12	0.09	0.09	0.00	1.05	10.82	4.31	0.74	0.06	5.11	15.93
Jamui	22.24	4.04	0.21	0.26	0.09	2.13	28.98	11.40	2.32	0.16	13.88	42.86
Khagaria	58.79	15.93	1.10	7.02	0.08	6.16	89.08	31.14	8.75	4.27	44.16	133.24
Bhagalpur	38.81	11.25	0.93	6.97	0.58	7.37	65.90	21.43	6.82	4.26	32.52	98.41
Banka	20.54	4.99	0.18	0.61	0.00	1.71	28.04	10.69	2.67	0.38	13.74	41.78
Saharsa	28.11	9.76	0.06	4.74	0.05	3.19	45.91	15.24	5.20	3.06	23.50	69.41
Supaul	28.95	12.24	0.14	6.00	0.25	5.83	53.42	16.67	6.86	3.77	27.30	80.73
Madhepura	37.51	13.59	0.26	7.70	0.82	7.99	67.87	21.33	8.04	4.93	34.29	102.16
Purnea	69.71	25.81	5.83	15.66	3.37	11.98	132.36	39.72	15.30	9.53	64.54	196.91
Kishanganj	15.18	6.86	3.33	1.89	0.35	1.31	28.91	8.53	3.97	1.19	13.68	42.59
Araria	48.85	17.91	2.84	11.23	0.72	6.51	88.06	27.14	10.00	6.75	43.89	131.94
Katihar	51.70	17.13	2.65	9.90	1.84	8.75	91.97	28.83	10.27	6.26	45.36	137.33
Bihar	1300.05	364.81	35.25	124.29	24.23	204.86	2053.49	706.16	218.65	81.84	1006.66	3060.15

Source : Department of Agriculture, GoB

Table A 3.15 : District-wise Number of Farm Implements (2017-18)

District	Farm Implements	Combine Harvester	Zero Tillage	Pumpset	Power Tiller	Manually Operated tools	Thresher
Patna	3048	12	21	84	134	182	238
Nalanda	1176	24	20	60	203	121	93
Bhojpur	1168	14	115	88	1	205	46
Buxar	739	27	74	118	0	32	24
Rohtas	1656	73	239	59	1	62	144
Kaimur	778	31	370	44	1	125	44
Gaya	1835	6	1	152	238	311	345
Jehanabad	527	2	2	26	72	236	62
Arwal	461	0	0	29	22	104	114
Nawada	725	11	2	30	54	216	123
Aurangabad	1211	12	5	62	18	55	346
Saran	2343	2	30	89	1	250	229
Siwan	2005	7	6	227	0	177	316
Gopalganj	1876	11	9	112	0	210	211
W. Champaran	3572	6	3	258	29	669	95
E. Champaran	5230	0	39	212	0	796	190
Muzaffarpur	2833	0	9	257	1	649	170
Sitamarhi	2989	0	22	56	0	983	199
Sheohar	734	0	9	69	4	236	32
Vaishali	2505	0	10	66	0	613	90
Darbhanga	860	0	4	36	0	0	32
Madhubani	2606	0	8	75	1	535	300
Samastipur	4518	1	7	200	0	137	121
Begusarai	3175	2	15	44	1	318	86
Munger	779	0	3	84	4	308	51
Sheikhpura	765	1	4	22	3	233	87
Lakhisarai	1062	0	14	96	0	328	149
Jamui	993	0	2	68	58	366	53
Khagaria	836	1	0	16	0	397	97
Bhagalpur	2533	0	7	265	2	865	110
Banka	1912	1	20	171	47	720	66
Saharsa	2417	0	3	42	0	679	76
Supaul	4161	0	1	133	1	402	57
Madhepura	2054	0	2	124	0	654	44
Purnea	3124	0	10	58	4	624	221
Kishanganj	933	1	0	74	1	76	10
Araria	1145	0	1	45	0	263	32
Katihar	2253	4	0	146	25	498	19
Bihar	73537	249	1087	3797	926	13635	4722

Source : Department of Agriculture, GoB

Table A 3.16 : District-wise Number of Farm Implements (2018-19)

District	Farm Implements	Combine Harvester	Zero Tillage	Pumpset	Power Tiller	Manually Operated tools	Thresher
Patna	2381	34	3	540	113	15	171
Nalanda	2082	41	39	190	204	53	92
Bhojpur	1302	9	117	309	0	47	140
Buxar	673	20	40	219	0	24	10
Rohtas	639	31	134	108	0	7	2
Kaimur	1263	14	229	190	0	28	26
Gaya	2827	12	2	827	130	171	441
Jehanabad	1085	1	0	156	62	103	93
Arwal	654	0	0	242	11	10	156
Nawada	1171	7	5	292	32	67	190
Aurangabad	1471	16	7	394	9	17	421
Saran	1957	1	24	367	0	86	226
Siwan	1791	14	1	309	0	68	292
Gopalganj	1463	7	0	281	0	75	132
W. Champaran	3367	2	2	473	6	362	124
E. Champaran	3907	1	32	488	0	356	241
Muzaffarpur	2123	0	7	383	0	209	197
Sitamarhi	1928	1	18	149	0	394	246
Sheohar	720	0	9	57	0	124	63
Vaishali	2277	0	7	429	1	209	88
Darbhanga	830	0	0	164	0	0	29
Madhubani	2231	1	5	301	0	127	295
Samastipur	4380	0	3	468	0	594	173
Begusarai	4128	2	8	578	0	203	183
Munger	688	1	0	152	4	101	86
Sheikhpura	625	2	0	47	5	55	86
Lakhisarai	798	4	5	93	0	140	95
Jamui	463	1	2	141	34	64	43
Khagaria	1039	0	0	114	0	263	73
Bhagalpur	2566	2	2	656	2	354	136
Banka	1210	1	12	401	32	146	38
Saharsa	2019	0	5	242	0	331	119
Supaul	2652	0	3	203	2	146	90
Madhepura	3032	0	3	415	0	362	109
Purnea	2823	0	6	190	3	259	146
Kishanganj	897	1	0	161	0	26	50
Araria	1788	2	10	171	1	141	95
Katihar	2159	2	1	462	17	233	107
Bihar	69409	230	741	11362	668	5970	5304

Source : Department of Agriculture, GoB

Table A 3.17 : District-wise Cooperative Credit Distribution (2016-17 to 2018-19)

District	Target (Rs. Lakh)			Achievement (Rs. lakh)		
	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
Patna	3990	7197	1285	3065.15 (76.8)	680.33 (9.5)	453.22 (35.3)
Nalanda	5586	5758	521	794.05 (14.2)	276.37 (4.8)	37.96 (7.3)
Bhojpur	6383	5758	998	472.79 (7.4)	528.01 (9.2)	377.34 (37.8)
Buxar	3724	3359	567	292.11 (7.8)	300.55 (8.9)	238.05 (42)
Rohtas	3458	3838	3680	2035.91 (58.9)	1947.09 (50.7)	1284.02 (34.9)
Kaimur	2926	2879	1606	864.05 (29.5)	849.86 (29.5)	741.8 (46.2)
Gaya	1596	1439	519	231.97 (14.5)	168.91 (11.7)	52.99 (10.2)
Jehanabad	532	480	309	4.7 (0.9)	4.7 (1)	1.2 (0.4)
Arwal	–	–	204	–	1.7	1.1 (0.5)
Nawada	6118	6237	2663	589 (9.6)	1785.03 (28.6)	1437.54 (54)
Aurangabad	5320	4798	769	558.77 (10.5)	406.95 (8.5)	68.09 (8.9)
Saran	–	–	–	–	–	–
Siwan	4242	3838	1446	1049.73 (24.7)	765.77 (20)	603.76 (41.8)
Gopalganj	6383	5758	4491	1618.93 (25.4)	2376.75 (41.3)	1463.34 (32.6)
W. Champaran	2128	2877	1098	556.63 (26.2)	581.06 (20.2)	766.62 (69.8)
E. Champaran	4256	3838	5568	2385.44 (56)	2946 (76.8)	881.64 (15.8)
Muzaffarpur	4256	3838	489	341.67 (8)	259.1 (6.8)	194.23 (39.7)
Sitamarhi	3192	2879	463	196.62 (6.2)	245.36 (8.5)	183.72 (39.7)
Sheohar	532	480	294	66.99 (12.6)	49.56 (10.3)	23.98 (8.2)
Vaishali	1862	1919	227	6.52 (0.4)	66.91 (3.5)	164.02 (72.3)
Darbhanga	–	–	–	–	–	–
Madhubani	6118	6237	6573	4668.6 (76.3)	3478.72 (55.8)	1367.21 (20.8)
Samastipur	2660	2879	3081	1989.01 (74.8)	2053.88 (71.3)	1804.95 (58.6)
Begusarai	3458	4318	11945	8054.83 (232.9)	6312.49 (146.2)	5477.81 (45.9)
Munger	–	–	130	19.96 (0)	68.84 (0)	11.8 (9.1)
Sheikhpura	–	–	119	–	10.47 (0)	2.77 (2.3)
Lakhisarai	–	–	140	–	20.73 (0)	9.8 (7)
Jamui	–	–	128	–	15.28 (0)	4.52 (3.5)
Khagaria	2394	2399	7276	5100.63 (213.1)	3850.35 (160.5)	4688.4 (64.4)
Bhagalpur	2660	3359	585	346.03 (13)	310.85 (9.3)	231.32 (39.5)
Banka	3458	3359	242	24.35 (0.7)	22.62 (0.7)	12.81 (5.3)
Saharsa	–	–	–	–	–	–
Supaul	–	–	–	–	–	–
Madhepura	–	–	–	–	–	–
Purnea	4522	4798	904	393.6 (8.7)	478.69 (10)	123.27 (13.6)
Kishanganj	2128	2399	327	86.97 (4.1)	173.28 (7.2)	163.73 (50.1)
Araria	2926	3359	1155	274.62 (9.4)	611.66 (18.2)	214.38 (18.6)
Katihar	3192	3359	261	60.38 (1.9)	137.79 (4.1)	236.46 (90.6)
Bihar	100000	103618	60063	36150.01 (36.2)	31785.66 (30.7)	23323.85 (38.8)

Note : Figures in parentheses denote percentage

Source : Department of Cooperative, GoB

Table A 3.18 : District-wise Gross Irrigated Area in Bihar (2017-18)

(Area in '000 hectare)

District	Canals	Tanks	Wells		Other Sources	Total
			Tubewells	Other wells		
Patna	43.36 (2.6)	0 (0)	96.35 (2.8)	19.27 (48.6)	1.61 (0.8)	160.58 (3.0)
Nalanda	29.39 (1.8)	0 (0)	190.01 (5.6)	1.7 (4.3)	5.14 (2.7)	226.23 (4.2)
Bhojpur	124.08 (7.5)	0 (0)	49.82 (1.5)	1.47 (3.7)	5.8 (3)	181.16 (3.3)
Buxar	79.28 (4.8)	0.45 (0.4)	89.01 (2.6)	0.36 (0.9)	11.08 (5.8)	180.17 (3.3)
Rohtas	254.1 (15.3)	0 (0)	35.5 (1)	9.81 (24.7)	38.72 (20.3)	338.13 (6.2)
Kaimur	86.54 (5.2)	0 (0)	85.89 (2.5)	0 (0)	13.88 (7.3)	186.3 (3.4)
Gaya	60.36 (3.6)	0.13 (0.1)	126.1 (3.7)	0 (0)	2.04 (1.1)	188.63 (3.5)
Jehanabad	26.6 (1.6)	0 (0)	33.26 (1)	0 (0)	0.61 (0.3)	60.47 (1.1)
Arwal	46.97 (2.8)	0 (0)	10.01 (0.3)	0 (0)	1.73 (0.9)	58.71 (1.1)
Nawada	35.45 (2.1)	0 (0)	85.5 (2.5)	0 (0)	4.79 (2.5)	125.74 (2.3)
Aurangabad	140.98 (8.5)	0.35 (0.3)	55.81 (1.6)	4.98 (12.6)	47.05 (24.7)	249.17 (4.6)
Saran	25.81 (1.6)	0.35 (0.3)	90.7 (2.7)	0 (0)	0.47 (0.2)	117.33 (2.2)
Siwan	22.51 (1.4)	2.52 (2.4)	85.63 (2.5)	0 (0)	2.43 (1.3)	113.09 (2.1)
Gopalganj	63.48 (3.8)	0 (0)	82.78 (2.4)	0 (0)	0.35 (0.2)	146.61 (2.7)
W. Champaran	185.44 (11.2)	0 (0)	128.94 (3.8)	0 (0)	1.1 (0.6)	315.48 (5.8)
E. Champaran	52.26 (3.1)	0 (0)	162.03 (4.7)	0 (0)	5.86 (3.1)	220.14 (4.1)
Muzaffarpur	45.04 (2.7)	0 (0)	129.97 (3.8)	0 (0)	7.33 (3.8)	182.34 (3.4)
Sitamarhi	0 (0)	5.46 (5.2)	188.93 (5.5)	0 (0)	2.1 (1.1)	196.49 (3.6)
Sheohar	0 (0)	0 (0)	26.25 (0.8)	0 (0)	0 (0)	26.25 (0.5)
Vaishali	0 (0)	0.39 (0.4)	111.7 (3.3)	0 (0)	9.99 (5.2)	122.08 (2.3)
Darbhanga	0 (0)	82.42 (78.6)	33.67 (1)	0 (0)	10.72 (5.6)	126.8 (2.3)
Madhubani	77.19 (4.6)	0.31 (0.3)	64.31 (1.9)	0 (0)	0.53 (0.3)	142.34 (2.6)
Samastipur	0 (0)	0 (0)	227.69 (6.7)	0 (0)	1.05 (0.6)	228.75 (4.2)
Begusarai	0 (0)	0.62 (0.6)	115.88 (3.4)	0 (0)	0.25 (0.1)	116.74 (2.2)
Munger	23.42 (1.4)	0.14 (0.1)	14.95 (0.4)	0 (0)	0.25 (0.1)	38.75 (0.7)
Sheikhpura	2.78 (0.2)	11.41 (10.9)	39.57 (1.2)	0 (0)	0.16 (0.1)	53.9 (1)
Lakhisarai	14.7 (0.9)	0 (0)	46.72 (1.4)	0 (0)	0.2 (0.1)	61.61 (1.1)
Jamui	20.3 (1.2)	0 (0)	44.15 (1.3)	0 (0)	0 (0)	64.46 (1.2)
Khagaria	0 (0)	0 (0)	86.52 (2.5)	0 (0)	0.09 (0)	86.61 (1.6)
Bhagalpur	8.42 (0.5)	0 (0)	90.46 (2.6)	0 (0)	1.01 (0.5)	99.89 (1.8)
Banka	53.84 (3.2)	0.33 (0.3)	62.5 (1.8)	1.85 (4.7)	0.8 (0.4)	119.32 (2.2)
Saharsa	7.05 (0.4)	0 (0)	93.68 (2.7)	0 (0)	3.71 (1.9)	104.43 (1.9)
Supaul	38.56 (2.3)	0 (0)	127.92 (3.7)	0 (0)	4.53 (2.4)	171.02 (3.2)
Madhepura	20.83 (1.3)	0 (0)	106.33 (3.1)	0 (0)	0.31 (0.2)	127.46 (2.4)
Purnea	22.92 (1.4)	0 (0)	128.89 (3.8)	0 (0)	3.29 (1.7)	155.11 (2.9)
Kishanganj	0 (0)	0 (0)	47.36 (1.4)	0.05 (0.1)	0.24 (0.1)	47.65 (0.9)
Araria	43.79 (2.6)	0 (0)	85.49 (2.5)	0 (0)	0.16 (0.1)	129.43 (2.4)
Katihar	4.58 (0.3)	0 (0)	138.02 (4)	0.14 (0.4)	1.4 (0.7)	144.14 (2.7)
Bihar	1660.00 (100)	104.88 (100)	3418.26 (100)	39.63 (100)	190.74 (100)	5413.51 (100)

Note : Figures in parentheses indicate percentage share of total GIA

Source : Directorate of Economics and Statistics

CHAPTER - IV

ENTERPRISES SECTOR

Capturing incomes from domestic demand requires policies oriented to improving social inclusiveness and building industrial capabilities.

— Industrial Development Report 2018, UN Industrial Development Organization

Abstract

Bihar, a state with abundant physical and human resources, has enormous potential for industrialisation. The State Government has adopted several strategies for industrialisation of the state. The state has developed agro-processing industries, based on its comparative advantage in the agricultural sector. The official data on informal enterprises shows that a significantly large section of the working-age population has been engaged in small scale production activities. Importantly, the informal enterprises have contributed substantially to capital formation and employment generation in the state. Among the major agro-based industries, dairy and sugar industries have performed particularly well. Bihar Industrial Area Development Authority (BIADA) has facilitated industrialisation in Bihar through several reforms. The impact of major reforms was visible, as the level of investment has increased in the last two years. Furthermore, the revenue collection from the minerals in Bihar has substantially increased from Rs 1083 crore in 2017-18 to Rs 1557 crore in 2018-19. Lastly, the tourism sector has also attracted a significantly large number of foreign and domestic tourists in the last few years.

Industrialisation is a strong driver for promoting growth and eradicating economic disparities across countries, and across regions within a country. Since the distant past, Bihar has been suffering from surplus population in an agrarian economy and the burgeoning population has been migrating towards the urban centres in the state and beyond. Admittedly, the remittances from migrants have positive impact on consumption demand, but it fails to add to the production capacity of the state's economy. The most sustainable solution for this problem is rapid industrialisation. Given the large size of working population, Bihar would require a kind of industrialisation that is broadly labour-intensive and also leads to large-scale capital formation within the state, expanding the base of the non-agricultural economy. Towards this, the State

Government has taken some important steps through infrastructural development and institutional reforms and some initial impacts of such investment are already visible.

In Bihar, the relation between annual growth rate of the secondary sector and Gross State Domestic Product has been rather moderate. It implies that fluctuation in the growth of the secondary sector contributes very marginally to the overall economic growth of the state. The growth trajectories of the constituent sub-sectors of the secondary sector have been volatile during the last five years. However, the most important driver of growth of the secondary sector has been the manufacturing sector. The performance of the manufacturing sector has a strong bearing on the overall growth achieved in the secondary sector. The state has performed remarkably well in providing electricity, gas, water supply, and other utility services (EGWUS) in the recent past. It is worthy to mention that, unlike other sub-sectors of the secondary sector, the growth rate of EGWUS has been consistently positive in the recent years and appreciably high in some years (Table 4.1).

The comparison of the contribution of the industrial sector to the Gross State Value Added (GSVA) across states suggests that it was the lowest in Bihar among all the major states of India. Till now, with a preponderance of small-sized industrial enterprises, Bihar's industrial economy is driven by the demand for consumption goods. The sectoral composition suggests that the industrial sector's contribution to GSVA in Bihar was merely 20.0 percent in 2017-18, 11.2 percentage points lower than the all-India average. It was also significantly lower than in states like Jharkhand (37.1 percent), Chhattisgarh (48.0 percent), and Odisha (42.1 percent) (Table 4.2). The lower share of the industrial sector in Bihar indicates a strong presence of the tertiary sector, as the agricultural sector has contributed only 25 percent of GSVA. Within the secondary sector, the size of the manufacturing sector is also very small in Bihar. To increase the contribution of the industrial sector in the GSDP, the State Government has strategized industrialisation by introducing a well-articulated Industrial Investment Promotion Policy, 2016 and brought in some institutional changes to aid the process of industrialisation.

Table 4.1 : Annual Growth Rate of Secondary Sector in Bihar at Constant Prices (2012-13 to 2018-19)

Sector	Secondary Sector					Gross State Domestic Product
	Mining and quarrying	Manufacturing	EGWUS*	Construction	Total	
2012-13	8.9	-33.8	9.8	-5.2	-13.1	3.9
2013-14	540.6	94.5	2.8	6.5	30.6	5.0
2014-15	-58.3	37.4	3.4	-4.6	10.0	3.6
2015-16	210.0	-10.0	0.1	10.2	2.3	6.1
2016-17	-24.6	25.6	8.3	6.0	13.1	8.9
2017-18 (P)	-12.0	1.3	12.0	7.0	4.4	10.5
2018-19 (Q)	2.7	3.0	5.3	9.4	6.2	10.5

Note : * EGWUS = Electricity, gas, water supply & other utility services
Source : Directorate of Economics and Statistics, GoB

Table 4.2 : Contribution of Industrial Sector in GSVA in the States of India (2011-12 to 2017-18)

State	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Andhra Pradesh	32.2	27.7	26.5	27.5	27.5	27.6	27.0
Assam	32.4	29.8	30.8	30.8	37.7	39.7	39.0
Bihar	18.8	15.7	19.8	21.1	20.3	21.1	20.0
Chhattisgarh	47.3	47.1	49.1	47.6	47.1	47.5	47.3
Gujarat	43.8	47.2	45.0	47.2	49.8	49.8	49.5
Haryana	31.6	32.2	32.1	31.7	32.2	32.7	32.1
Jharkhand	45.4	46.4	45.2	43.5	41.3	41.0	40.6
Karnataka	29.5	28.2	27.8	26.5	27.6	28.7	28.0
Kerala	28.2	27.2	27.3	27.3	27.7	28.9	28.6
Madhya Pradesh	30.9	28.0	27.6	27.3	29.3	27.3	27.6
Maharashtra	35.8	35.5	34.3	34.9	35.5	34.8	34.8
Odisha	43.6	41.0	43.8	40.2	42.8	45.3	44.4
Punjab	25.4	24.8	24.7	25.0	25.2	25.1	25.1
Rajasthan	32.7	31.4	29.7	30.5	33.3	33.1	32.9
Tamil Nadu	36.9	37.7	35.8	33.6	36.2	37.3	36.9
Telangana	30.9	27.1	25.5	23.7	25.7	24.0	23.8
Uttar Pradesh	27.6	27.0	27.7	26.5	28.2	29.1	28.6
West Bengal	26.6	26.1	26.2	24.4	25.0	27.1	28.3
India	32.5	31.8	31.2	31.1	31.6	31.5	31.2

Source : Central Statistical Organisation (CSO)

4.1 Status of Industries

The official data source, Annual Survey of Industries (ASI), provides information on factories registered under the Factories Act, 1948. Apart from that, ASI collects information on bidi and cigar making units, employing 10 or more workers with the aid of power and 20 or more workers without the aid of power and registered under the Bidi & Cigar Workers (Conditions of Employment) Act, 1966.

Table 4.3 reports the number of factories and number of operational factories in Bihar and at all-India level. The annual growth rate of the number of factories (both agro-based and non-agro based) and the number of operational factories (both agro-based and non-agro based) was higher in Bihar than that at the all-India level. It is heartening to note that the growth rate of operational agro-based factories in Bihar was 16.4 percent over the last 10 years, compared to only 3.3 percent at the all-India level, although there has been a marginal drop in the number of industries in some of the years.

Table 4.3 : Number of Factories and Factories in Operation (2006-07 to 2016-17)

Year	No. of Factories			No. of Factories in Operation			Operational Factories on Percentage of Total No. of Factories (Total)
	Agro-based	Non-Agro Based	Total	Agro-based	Non-Agro Based	Total	
Bihar							
2006-07	278	1323	1601	228	1182	1410	88.1
2007-08	466	1319	1785	404	1209	1613	90.4
2008-09	437	1340	1777	377	1172	1549	87.2
2009-10	510	1409	1919	454	1271	1725	89.9
2010-11	918	1889	2807	822	1725	2547	90.7
2011-12	1126	2106	3232	1014	1858	2872	88.9
2012-13	1141	2206	3347	1005	1941	2946	88.0
2013-14	1148	2272	3420	1036	2096	3132	91.6
2014-15	1232	2298	3530	1129	1813	2942	83.3
2015-16	1251	2372	3623	1092	1826	2918	80.5
2016-17	1229	2302	3531	1049	1859	2908	82.4
CAGR	16.0	7.4	9.7	16.4	5.9	8.8	—
India							
2006-07	54902	89809	144711	51681	86937	138618	95.8
2007-08	62189	84196	146385	59124	81443	140567	96.0
2008-09	67259	88063	155322	64005	86285	150290	96.8
2009-10	65409	93469	158878	62299	90336	152635	96.1
2010-11	87520	117011	204531	69249	97387	166636	81.5
2011-12	93251	124303	217554	72769	102939	175708	80.8
2012-13	87803	134317	222120	68698	110403	179101	80.6
2013-14	87775	136803	224578	70993	114697	185690	82.7
2014-15	95887	134546	230433	77049	112417	189466	82.2
2015-16	90762	142354	233116	73427	117635	191062	82.0
2016-17	91159	143706	234865	75684	118696	194380	82.8
CAGR	5.3	6.2	5.8	3.3	4.1	3.8	—

Source : Annual Survey of Industries

Table 4.4 presents the data on some crucial indicators to judge the relative size and scale of operations of industries in India and Bihar. The indicators are — the amount of fixed capital, amount of working capital, number of employees, value of output, and net value-added. Some

Table 4.4 : Industries in Bihar (2006-07 to 2016-17)

Year	Number of Factories in Operation (in '000)		Bihar as Percentage of India	Fixed capital (Rs. '000 crore)		Bihar as Percentage of India
	India	Bihar		India	Bihar	
2006-07	139	1.41	1.0	715	2.95	0.4
2007-08	141	1.61	1.1	845	3.01	0.4
2008-09	150	1.55	1.0	1056	3.03	0.3
2009-10	153	1.73	1.1	1352	4.45	0.3
2010-11	167	2.55	1.5	1607	5.26	0.3
2011-12	176	2.87	1.6	1950	7.55	0.4
2012-13	179	2.95	1.6	2180	6.47	0.3
2013-14	186	3.13	1.7	2374	8.04	0.3
2014-15	189	2.94	1.6	2474	9.94	0.4
2015-16	191	2.92	1.5	2810	9.92	0.4
2016-17	194	2.91	1.5	3190	18.04	0.6
CAGR	3.7	8.8	—	15.9	18.6	—
Year	Working Capital (Rs. '000 crore)		Bihar as Percentage of India	Persons Engaged (in '000)		Bihar as Percentage of India
	India	Bihar		India	Bihar	
2006-07	282	1.61	0.6	10328	67.00	0.6
2007-08	317	1.64	0.5	10453	74.00	0.7
2008-09	311	1.47	0.5	11327	74.00	0.6
2009-10	388	0.95	0.2	11792	87.00	0.7
2010-11	620	2.47	0.4	12695	106.00	0.8
2011-12	589	(-) 0.24	—	13430	127.00	1.0
2012-13	603	2.48	0.4	12950	116.00	0.9
2013-14	1011	5.88	0.6	13538	114.00	0.8
2014-15	641	3.49	0.5	13881	146.00	1.0
2015-16	741	1.45	0.2	14300	119.50	0.8
2016-17	663	2.08	0.3	14911	116.23	0.8
CAGR	11.2	7.0	—	3.7	6.9	—
Year	Value of Output (Rs. '000 crore)		Bihar as Percentage of India	Net Value Added (Rs. '000 crore)		Bihar as Percentage of India
	India	Bihar		India	Bihar	
2006-07	2409	19.04	0.8	396	0.32	0.1
2007-08	2776	21.87	0.8	482	1.16	0.2
2008-09	3273	29.54	0.9	528	3.18	0.6
2009-10	3733	2.83	0.1	592	2.32	0.4
2010-11	4676	36.05	0.8	705	4.42	0.6
2011-12	5776	60.17	1.0	837	5.64	0.7
2012-13	6026	51.68	0.9	852	1.30	0.2
2013-14	6555	55.30	0.8	895	5.15	0.6
2014-15	6884	58.76	0.8	975	5.82	0.6
2015-16	6862	47.73	0.7	1072	5.24	0.5
2016-17	7266	47.69	0.7	1146	5.37	0.5
CAGR	12.3	15.7	—	10.9	22.5	—

Source : Annual Survey of Industries

interesting conclusions emerge out of this table. First, except growth of working capital, all the above-mentioned indicators grew at a much faster pace in Bihar vis-à-vis at the all-India level. Second, between 2015-16 and 2016-17, though the number of operational factories declined marginally in Bihar, the size of the fixed capital and working capital increased by 82 and 43 percent, respectively. Third, between 2015-16 and 2016-17, the value of output and net value added have increased marginally, although, as mentioned before, the number of operational factories declined. Fourth, between 2015-16 and 2016-17, the number of persons engaged declined almost by 3 percent in Bihar. These four observations together are indicative of the fact that the capital intensive industries are gradually emerging in Bihar, contrary to the general perception.

Table 4.5, using different measures of labour, capital and output, confirms that the financial year 2016-17 has seen a remarkable improvement in the fixed capital per factory in operation, and fixed capital per person engaged in Bihar. Other characteristics like workers per factory in operation, persons engaged per factory in operation, net value added per factory in operation, and net value added per person engaged have either changed insignificantly or remained the same between 2015-16 and 2016-17. The amount of fixed capital per factory in operation and fixed capital per person engaged has increased by 82.5 percent and 87 percent, respectively between 2015-16 and 2016-17. This again clearly indicates an increase in capital intensity in the industries operating in Bihar. However, the average size of fixed capital per factory in Bihar was just 37.8 percent of the all-India average, indicating the smaller size of factories in Bihar. In case of capital-labour ratio, the gap between Bihar and the all-India level has narrowed down significantly between 2015-16 and 2016-17.

Table 4.5 : Structural Ratios of Industries in India and Bihar (2012-13 to 2016-17)

Characteristics	2012-13		2013-14		2014-15		2015-16		2016-17	
	India	Bihar	India	Bihar	India	Bihar	India	Bihar	India	Bihar
Fixed capital / Factory in Operation (Rs. lakh)	1217	220 (18.1)	1278	257 (20.1)	1306	338 (25.9)	1470.5	339.9 (23.1)	1641.3	620.4 (37.8)
Fixed capital/ Persons Engaged (Rs. lakh)	16.9	5.6 (33.1)	17.5	7.1 (40.4)	17.8	6.8 (38.2)	19.6	8.3 (42.2)	21.4	15.5 (72.6)
Workers / Factory in Operation (Number)	56	34 (60.7)	56	31 (54.6)	57	43 (75.2)	58.3	35.4 (60.7)	60.0	34 (56.7)
Persons Engaged / Factory in operation (Number)	72	40 (55.6)	73	36 (49.7)	73	50 (67.8)	74.8	41 (54.7)	76.7	40 (52.1)
Net Value Added / Factory in operation (Rs. lakh)	476	44 (9.2)	482	165 (34.1)	515	197 (38.5)	561.3	179.6 (32)	589.5	184.6 (31.3)
Net Value Added / Persons Engaged (Rs. lakh)	6.6	1.1 (17)	6.6	4.5 (68.6)	7	4.0 (56.7)	7.5	4.4 (58.5)	7.7	4.6 (60.1)

Note : The data in bracket indicate Bihar's figure as percentage of India's figure.

Source : Annual Survey of Industries

The contribution of Bihar to the country's industrial output has been extremely limited, at 0.5 percent of total Gross Value Added (GVA) of the industrial sector in India in 2016-17 (Table 4.6). In earlier years, this ratio was even lower at around 0.3 percent of total GVA of the industrial sector in India. The share of GVA in GVO of Bihar has been low at 13.4 percent, which is 9.1 percentage points lower than that of Maharashtra, the best performing state in terms of industrial output. At the national level, this ratio stands at 18.8 percent. If the average scales of operation of factories in Bihar and Maharashtra are compared, a factory in Bihar added only Rs. 2.2 crore compared to Rs. 11.5 crore in Maharashtra. This again indicates the relatively lower size of operations of factories in Bihar.

Table 4.6 : State-wise GVO and GVA of Industrial Sector (2016-17)

State	No. of Factories in Operation	Gross Value of Output (GVO) (Rs. crore)	Gross Value Added (GVA)		
			Amount (Rs. crore)	Percentage Share in Total	As Percentage of GVO
Andhra Pradesh	13084	265834	35406	2.6	13.3
Bihar	2908	47693	6414	0.5	13.4
Chhattisgarh	2874	108669	17076	1.2	15.7
Gujarat	18980	1222201	199211	14.6	16.3
Haryana	6854	500387	78960	5.8	15.8
Jharkhand	2449	123228	26942	2.0	21.9
Karnataka	10748	501647	97292	7.1	19.4
Kerala	6748	143187	22362	1.6	15.6
Madhya Pradesh	3975	204673	39676	2.9	19.4
Maharashtra	21095	1074970	242152	17.7	22.5
Odisha	2694	151092	30836	2.3	20.4
Punjab	10705	189215	29143	2.1	15.4
Rajasthan	8263	270546	50224	3.7	18.6
Tamil Nadu	31614	765524	143044	10.5	18.7
Telangana	12725	203818	42201	3.1	20.7
Uttar Pradesh	12894	495523	101007	7.4	20.4
West Bengal	8604	288236	37094	2.7	12.9
India	194380	7265514	1368050	100.0	18.8

Source : Annual Survey of Industries

The above-mentioned characteristics of factories in Bihar is also reflected in Table 4.7, presenting data on employment and wages. On an average, a factory in Bihar employs only 40.0 workers,

which is almost half of the all-India average (76.7 workers) and one-third of a factory's employment-generating capacity in Haryana (120.7 workers). The low productivity of labour, as previously mentioned, also leads to a lower level of compensation to the workers in Bihar. For instance, a worker in a factory in Bihar received a sum of Rs. 129.6 thousand per annum as wages, salaries and bonus, which was just one-third of the prevailing compensation level in Jharkhand (Rs. 373.8 thousand) and Maharashtra (Rs. 344.0 thousand), the two best performing states in India. At the national level, the average compensation per annum was Rs. 252.8 thousand.

Table 4.7 : State-wise Persons Engaged in Industrial Sector (2016-17)

State	No. of Factories in Operation	Persons Engaged			Wages, Salaries & Bonus per Person annually
		Number (Rs. '000)	Percentage Share in Total	Employment per Factory	
Andhra Pradesh	13084	5640	3.8	43.1	4140
Bihar	2908	1162	0.8	40.0	129584
Chhattisgarh	2874	1874	1.3	65.2	311084
Gujarat	18980	16346	11.0	86.1	265457
Haryana	6854	8270	5.5	120.7	275156
Jharkhand	2449	1891	1.3	77.2	373762
Karnataka	10748	10650	7.1	99.1	293578
Kerala	6748	3196	2.1	47.4	217388
Madhya Pradesh	3975	3726	2.5	93.7	244332
Maharashtra	21095	19262	12.9	91.3	344045
Odisha	2694	2725	1.8	101.2	291872
Punjab	10705	6563	4.4	61.3	169765
Rajasthan	8263	5330	3.6	64.5	247513
Tamil Nadu	31614	24083	16.2	76.2	220216
Telangana	12725	7246	4.9	56.9	187290
Uttar Pradesh	12894	10129	6.8	78.6	241917
West Bengal	8604	6407	4.3	74.5	215239
India	194380	149112	100.0	76.7	252790

Source : Annual Survey of Industries

The industrial sector in Bihar has been historically suffering from low investment, low capital formation, and low return on investment. However, careful policy formulation and institutional interventions by the State Government have been instrumental in improving the investment climate

of the state in the last five years. The ASI data suggest that the levels of fixed capital and working capital have increased significantly between 2015-16 and 2016-17. It also clearly indicates that the industrial sector is growing in the right direction to be able to play an important role in the state's economic growth process in future.

Informal Enterprises in Bihar

According to the NSS 73rd Round (July 2015 – June 2016) 'Survey on Unincorporated Non-Agricultural Enterprises (Excluding Construction)', the number of unincorporated non-agricultural enterprises (UNAEs) was estimated at 6.34 crore at the all-India level, whereas Bihar is the place of operation for 5.4 percent of such enterprises in the country. To understand various aspects of the informal sector, NSS 73rd Round covered UNAEs belonging to three sectors — Manufacturing, Trade and Other Services (excluding construction). It may be mentioned here that the Annual Survey of Industries (ASI) does not cover the large section of informal sector production units in the country. Seven types of enterprises were surveyed — (i) manufacturing enterprises (excluding those registered under Sections 2m(i) and 2m(ii) of the Factories Act, 1948), (ii) manufacturing enterprises registered under Section 85 of Factories Act, 1948, (iii) enterprises engaged in cotton ginning, cleaning and baling excluding those registered under Factories Act, 1948, (iv) enterprises manufacturing beedi and cigar, excluding those registered under Beedi and Cigar Workers (Conditions of Employment) Act, 1966, (v) non-captive electric power generation, transmission and distribution by units not registered with the Central Electricity Authority (CEA), (vi) trading enterprises and (vii) other services sector enterprises (excluding construction).

In this section, some of the key economic aspects of UNAEs are highlighted, using the three most important activity categories (manufacturing, trade, and other services) and two types of enterprises (Own Account Enterprises (OAE) and Establishment), within each activity category. Table 4.8 suggests that, at the all-India level, the share of manufacturing was 23.5 percent of total Gross Value Added (GVA) of enterprises, engaged exclusively in market production, while trade and other services contributed 38.7 percent and 37.8 percent, respectively of total GVA of enterprises. The share of manufacturing was high in states like Gujarat (42.6 percent), followed by West Bengal (32.7 percent). The share of manufacturing total GVA in Bihar was only 18.3 percent; however, the share of trade was 53.8 percent, the highest among all the states. The share of other services was the lowest (27.9 percent) in Bihar.

Table 4.8 : Share of Estimated GVA of Market Enterprises by Broad Activity Category for Major States (2016)

State	Manufacturing	Trade	Other services	All
Andhra Pradesh	22.3	32.6	45.1	100.0
Assam	18.3	53.8	27.9	100.0
Bihar	18.1	45.1	36.9	100.0
Chhattisgarh	19.3	46.1	34.7	100.0
Gujarat	42.6	26.7	30.8	100.0
Haryana	16.2	39.1	44.7	100.0
Jharkhand	18.4	40.2	41.5	100.0
Karnataka	21.0	39.7	39.4	100.0
Kerala	15.7	37.6	46.7	100.0
Madhya Pradesh	18.0	37.0	45.1	100.0
Maharashtra	20.0	39.4	40.6	100.0
Odisha	15.6	45.5	38.8	100.0
Punjab	23.2	47.4	29.3	100.0
Rajasthan	21.8	34.3	44.0	100.0
Tamil Nadu	27.6	32.5	40.0	100.0
Telangana	23.2	34.9	41.9	100.0
Uttar Pradesh	20.9	46.3	32.8	100.0
West Bengal	32.7	36.3	31.0	100.0
India	23.5	38.7	37.8	100.0

Source : NSS 73rd Round, July 2015 - June 2016

Within the manufacturing sector, the GVA per enterprise of OAE in Bihar (Rs. 99 thousand) was higher than that at the all-India level (Rs. 62 thousand) (Table 4.9). However, the performance of the establishments within the manufacturing sector in Bihar (Rs. 301 thousand) was below the national average (Rs. 574 thousand). The gap between the best-performing state of Gujarat (Rs 1209 thousand) and Bihar (at Rs 301 thousand) was substantial. An establishment within the manufacturing sector in Bihar could generate only one-fourth of the GVA generated in Gujarat. In the case of the trade sector, both OAE and establishments performed relatively better than the manufacturing sector. Admittedly, taking into account all the sectors, the level of performance of UNAEs is better at the national level; but if one takes into account OAEs only, the level of performance is better in Bihar than the national average.

Table 4.9 : Estimated GVA Per Enterprise for all Market Enterprises by Major State, Broad Activity Category and Enterprise Type (2016)

State	GVA per enterprise (in Rs. '000)								
	Manufacturing			Trade			Other services		
	OAE	Establishment	All	OAE	Establishment	All	OAE	Establishment	All
Andhra Pradesh	50	353	99	104	587	161	72	911	140
Assam	89	348	153	105	316	137	90	314	139
Bihar	99	301	121	120	526	154	107	435	163
Chhattisgarh	61	462	109	77	469	125	71	536	156
Gujarat	87	1209	278	133	609	206	108	1192	243
Haryana	115	669	271	162	611	267	123	1276	405
Jharkhand	45	383	64	85	505	114	81	419	146
Karnataka	71	629	155	167	591	264	123	980	304
Kerala	69	588	189	134	747	333	128	872	282
Madhya Pradesh	52	392	85	94	400	136	88	856	230
Maharashtra	79	789	217	164	736	281	132	1046	336
Odisha	44	301	65	71	555	116	63	356	112
Punjab	100	465	188	144	623	256	104	554	179
Rajasthan	86	587	162	112	603	181	136	1072	281
Tamil Nadu	66	585	167	130	569	225	117	660	252
Telangana	49	485	81	128	589	216	92	866	208
Uttar Pradesh	69	415	120	102	562	146	84	534	150
West Bengal	33	414	67	104	407	137	71	441	110
India	62	574	136	121	598	195	100	737	211

Source : NSS 73rd Round, July 2015 - June 2016

Table 4.10 examines the labour productivity of all market enterprises across three activity categories and two enterprise types. The GVA per worker in OAEs within the manufacturing sector in Bihar was Rs 71 thousand, almost 54 percent higher than the all-India average (Rs. 46 thousand). Similarly, GVA per worker in OAEs in trade was Rs 94 thousand, again 7 percent more than the all-India average (Rs. 88 thousand). However, establishments in Bihar across all the three categories performed below the all-India level average. Combining the observations from Tables 4.9 and 4.10, one can safely conclude that, in spite of the smaller size, the OAEs in Bihar operate more efficiently than the establishments in the state.

Table 4.10 : Estimated GVA Per Worker for all Market Enterprises by Major States, Broad Activity Category and Enterprise Type (2016)

State	GVA per worker (in Rs. '000)								
	Manufacturing			Trade			Other services		
	OAE	Establishment	All	OAE	Establishment	All	OAE	Establishment	All
Andhra Pradesh	37	74	52	71	164	93	70	149	98
Assam	70	91	81	94	122	102	84	95	89
Bihar	71	96	76	94	159	107	88	119	100
Chhattisgarh	35	86	51	45	137	65	53	116	80
Gujarat	71	185	131	95	179	120	98	228	150
Haryana	95	132	118	133	202	163	109	224	181
Jharkhand	33	84	42	61	156	74	67	114	87
Karnataka	56	144	89	115	175	139	112	191	156
Kerala	56	150	102	105	224	171	116	187	153
Madhya Pradesh	35	94	49	68	113	81	70	139	107
Maharashtra	62	158	108	112	220	152	117	230	178
Odisha	28	85	37	47	167	70	53	93	69
Punjab	83	127	105	118	195	153	95	128	110
Rajasthan	65	136	91	90	200	121	113	176	143
Tamil Nadu	53	121	86	89	164	118	99	146	125
Telangana	44	132	62	83	181	115	94	164	128
Uttar Pradesh	42	83	56	69	154	87	68	103	82
West Bengal	25	84	40	83	131	95	66	117	81
India	46	122	74	88	180	116	88	158	120

Source : NSS 73rd Round, July 2015 - June 2016

The annual income of the workers varies within a range of Rs 53 thousand (OAEs in manufacturing) to Rs. 82 thousand (establishments in other services) across the three activity categories and two enterprises types at the all-India level. It clearly suggests that the majority of the hired workers in the unincorporated sector earn very low wages across the states vis-à-vis hired workers in the formal industrial sector. In Bihar, the wage level of the hired workers was even lower, ranging from Rs. 48 thousand (OAEs in manufacturing) to Rs. 68 thousand (establishment in other services).

Table 4.11 : Annual Emoluments per Hired Worker for all Enterprises by State, Broad Activity Category and Enterprise Type (2016)

State	Emoluments per hired worker (in Rs. '000)								
	Manufacturing			Trade			Other services		
	OAE	Establishment	All	OAE	Establishment	All	OAE	Establishment	All
Andhra Pradesh	49	50	50	51	77	77	58	106	105
Assam	31	48	48	34	53	53	35	60	60
Bihar	48	57	57	37	61	60	40	68	68
Chhattisgarh	31	47	46	44	66	66	23	72	69
Gujarat	37	92	92	49	81	81	79	161	161
Haryana	69	78	78	56	94	94	51	165	165
Jharkhand	49	52	52	29	60	59	49	81	79
Karnataka	51	90	89	102	96	96	61	119	119
Kerala	94	112	112	77	118	118	70	138	137
Madhya Pradesh	39	52	52	33	76	75	53	86	85
Maharashtra	59	94	94	55	88	88	56	137	137
Odisha	58	53	53	42	63	63	27	66	66
Punjab	42	77	76	47	74	74	85	85	85
Rajasthan	80	86	86	79	76	76	52	106	105
Tamil Nadu	61	83	83	64	87	87	62	103	103
Telangana	60	87	87	16	84	83	50	104	104
Uttar Pradesh	51	51	51	50	61	61	39	63	63
West Bengal	35	60	60	44	55	55	41	60	60
India	53	76	76	61	81	80	51	102	101

Source : NSS 73rd Round, July 2015 - June 2016

Across all the three activity categories and two enterprise types, the level of fixed capital of enterprises was much lower in Bihar, compared to the all-India average (Table 4.12). For instance, an establishment under the manufacturing sector in Bihar would possess fixed assets of only Rs. 199 thousand, about 30 percent of the all-India average of Rs. 662 thousand. A similar pattern was observed in case of the establishments under trade (only 57 percent of the all-India average) and the establishments under other services (only 44 percent of the all-India average). However, in the case of OAEs, the gap between Bihar and all-India level was very narrow for all the three activity categories.

Table 4.12 : Market Value of Owned Fixed Assets (Rs.) Per Enterprise for all Enterprises by State, Broad Activity Category and Enterprise Type (2016)

State	Value of owned fixed assets per enterprise (in Rs. '000)								
	Manufacturing			Trade			Other services		
	OAE	Establishment	All	OAE	Establishment	All	OAE	Establishment	All
Andhra Pradesh	66	351	112	62	416	103	86	1217	178
Assam	36	221	81	45	123	57	118	326	164
Bihar	69	199	83	70	361	94	102	527	174
Chhattisgarh	86	535	140	127	527	175	101	1405	340
Gujarat	162	2479	556	260	1228	409	151	2170	404
Haryana	144	687	296	180	479	250	162	1664	528
Jharkhand	38	275	52	76	325	93	93	764	224
Karnataka	74	631	158	109	327	159	177	1284	412
Kerala	58	351	126	111	393	203	175	1380	426
Madhya Pradesh	91	473	128	136	873	237	171	1299	382
Maharashtra	147	1298	372	254	1409	491	252	1956	635
Odisha	38	194	50	48	232	65	69	626	161
Punjab	120	532	219	162	692	286	145	926	275
Rajasthan	127	547	191	161	605	224	245	1975	514
Tamil Nadu	89	617	192	107	356	160	203	960	392
Telangana	55	231	68	115	197	130	137	784	234
Uttar Pradesh	100	470	154	117	954	198	126	1318	301
West Bengal	31	246	50	70	246	90	74	498	119
India	79	662	163	125	636	204	147	1185	328

Source : NSS 73rd Round, July 2015 - June 2016

In spite of the low average value of fixed assets, the ratio of GVA to fixed assets in Bihar indicate that UNAEs have performed remarkably well, compared to the national average (Table 4.13). Across all activity categories and enterprise types, the ratio of GVA to fixed assets per enterprise was much higher in Bihar compared to even industrialised states like Maharashtra, Karnataka and Haryana, to name a few.

Table 4.13 : Ratio of GVA to Fixed Assets per Enterprise by State, Broad Activity Category and Enterprise Type (2016)

State	Ratio of GVA to fixed assets per enterprise								
	Manufacturing			Trade			Other services		
	OAE	Establishment	All	OAE	Establishment	All	OAE	Establishment	All
Andhra Pradesh	57.4	74.6	66.2	98.6	82.2	90.9	62.1	53.1	56.8
Assam	188.4	131.4	151.4	147.5	135.3	143.0	65.2	70.7	67.9
Bihar	117.9	101.7	113.0	108.1	70.0	93.6	79.3	59.5	68.9
Chhattisgarh	57.1	64.2	60.5	46.0	43.5	44.8	55.3	30.8	36.8
Gujarat	44.0	38.8	40.0	35.5	32.7	34.1	50.5	47.3	48.2
Haryana	58.8	77.5	70.6	61.5	74.7	67.9	52.6	63.9	60.9
Jharkhand	107.5	110.7	108.6	89.1	121.5	96.8	76.6	49.3	58.5
Karnataka	57.6	61.5	59.9	58.0	65.1	61.4	42.6	52.1	48.5
Kerala	84.2	105.2	98.3	59.5	92.2	80.2	57.7	48.3	51.0
Madhya Pradesh	43.9	52.2	47.2	47.3	29.1	37.9	34.1	47.5	42.1
Maharashtra	34.7	31.6	32.4	30.3	26.0	27.8	30.4	29.3	29.5
Odisha	109.0	121.0	113.2	100.3	134.3	113.1	75.7	51.2	60.4
Punjab	56.5	64.8	61.2	51.8	64.1	58.2	46.5	45.4	45.9
Rajasthan	46.4	72.1	57.7	39.4	55.7	45.6	40.7	41.1	40.8
Tamil Nadu	52.2	66.1	60.9	63.5	84.2	73.3	43.0	51.7	48.2
Telangana	63.0	92.4	73.2	55.0	95.5	70.5	51.3	63.9	58.5
Uttar Pradesh	56.6	72.2	63.6	59.0	46.9	53.9	48.7	34.8	40.1
West Bengal	97.8	136.3	115.8	119.9	117.6	119.1	78.0	69.6	74.0
India	58.9	59.2	59.1	57.1	53.8	55.5	48.4	44.7	46.0

Source : NSS 73rd Round, July 2015 - June 2016

4.2 Agro-based Industries

Given the existing cropping pattern of Bihar, the state has substantial comparative advantage for agro-based industries. This comparative advantage is reflected in the pattern of investment in the food processing industries. The Bihar Industrial Area Development Authority (BIADA) reports that, in the last two years (2017-18 and 2018-19), a sum of Rs. 742.54 crore has been invested in food processing industries, the highest among all the industries classified under ‘High Priority Sector.’

Sugar Industry

Bihar accounts for 3.5 percent of the total sugarcane production in India. The State Government has been seriously harnessing the potential of sugarcane cultivation and sugar production. The sugar production also becomes very important as the by-products obtained from the production process have multiple usages. The most important by-products of the sugar industry are — cane top, bagasse, filter muds, and molasses. Cane tops are primarily used for animal feed. Bagasse is the fibrous residue of the cane after cane crushing and can be used to generate electricity. Bagasse can also be used to produce particleboard, that can reduce the use of timber, plywood, and fibreboard. Furthermore, bagasse is also used to produce paper. Another by-product, filter muds, is used as animal feed and a good input as bio-fertiliser. Molasses again has multiple usages, as molasses fermentation produces ethyl alcohol, acetic acid, acetone, etc. So, a ‘sugar mill’ is now a days characterised as a ‘sugar complex’ because of its production of both sugar and a large number of by-products.

In Bihar, 11 sugar mills are presently operating, spread across six districts. Of these 11 sugar mills, seven are situated in two districts — West Champaran (four sugar mills) and Gopalganj (three sugar mills). This indicates the concentration of sugar mills in the north-western Bihar. In 2018-19, 810.17 lakh quintals of sugarcane were crushed to produce 84.02 lakh quintals of sugar. Between 2017-18 and 2018-19, sugarcane production has increased by 8.3 percent, while sugar production has increased by 17.4 percent in the state. The reason for higher sugar production was a remarkable improvement in the recovery rate, which has improved from 9.57 percent in 2017-18 to 10.37 percent in 2018-19.

Apart from sugar production, all sugar mills (except two at Sasamusa and Gopalganj) have installed capacity to produce useful by-products, such as ethyl alcohol, electricity and bio-fertiliser. The total distillery capacity installed by six sugar mills to produce ethyl alcohol was 395 KLPD (kilo litres per day). The sugar mills at Bagha and Sidhwalia are in the process of installing distillery on their premises. Out of 11 sugar mills, 8 mills undertook generation of electricity from bagasse and together generated about 88.5 MW electricity during the crushing season of 2018-19. Apart from that, bio-fertiliser units were set up at Harinagar, Narkatiaganj, Gopalganj, and Riga sugar mills. Further, Sidhwalia and Hasanpur sugar mills have started producing vermicompost. Due to improvement in utilisation of installed capacity, the crushing season in Bihar has been elongated in 2018-19. In the crushing season of 2015-16, the number of days of operation was only 95, which increased to 145 days in 2018-19, registering an increase of 52 percent in just four years. This, in turn, resulted in an increase in employment opportunity.

To encourage sugarcane cultivation, the State Government is presently implementing the three-tier seed replacement programme, known as Mukhya Mantri Ganna Vikas Yojana. The following measures were implemented under the programme in 2018-19.

- (i) The sugar mills have received in incentive of Rs. 25,000 per hectare for growing foundation seed. For this purpose, the State Government had earmarked a sum of Rs. 162.5 lakh, of which Rs. 59.56 lakh has been disbursed.
- (ii) To promote certified seeds for higher productivity, a subsidy of Rs. 160 per quintal for general category farmers and Rs 200 per quintal for SC/ST farmers was given to the cultivators on purchase of 16 listed certified varieties of seeds. Under this programme, a sum of Rs. 682.78 lakh has been distributed.
- (iii) To encourage the production of certified seeds, farmers were offered Rs 30 per quintal as bonus. For this purpose, the State Government has allocated Rs. 351 lakh in 2018-19, of which Rs. 126 lakh was distributed among the cultivators of certified seeds.

In 2018-19, the above-mentioned initiatives benefitted about 8468 farmers and covered almost 7023 hectares of sugarcane field.

Table 4.14 : Performance of Sugar Mills in Terms of Sugar Production and Recovery Percentage (2016-17 to 2018-19)

Name of Sugar Mill	Sugarcane Crushed (lakh qntl.)	Sugar Produced (lakh qntl.)	Recovery (Percentage)	Sugarcane Crushed (lakh qntl.)	Sugar Produced (lakh qntl.)	Recovery (Percentage)	Sugarcane Crushed (lakh qntl.)	Sugar Produced (lakh qntl.)	Recovery (Percentage)
	2016-17			2017-18			2018-19		
Bagaha	82.60	7.33	8.88	113.75	10.36	9.11	121.01	12.53	10.35
Harinagar	126.44	11.60	9.23	175.55	17.67	10.04	175.18	18.76	10.71
Narkatiaganj	88.06	8.54	9.70	118.08	12.17	10.31	121.90	13.78	11.31
Manjhaulia	49.93	4.50	9.03	60.51	5.46	9.00	64.51	6.45	10.0
Sasamusa	16.15	1.32	8.42	4.88	0.31	6.35	18.75	1.75	9.25
Gopalganj	38.81	3.55	9.20	55.11	5.19	9.45	65.5	6.78	10.36
Sidhwalia	47.69	4.37	9.18	58.24	5.38	9.24	65.67	6.77	10.33
Riga	32.70	2.86	8.72	46.90	4.08	8.77	45.26	3.62	8.05
Hasanpur	29.00	2.88	9.94	38.97	4.08	10.47	59.64	6.69	11.23
Lauriya	32.63	2.96	9.08	40.10	3.65	9.13	35.61	3.49	9.95
Sugauli	27.13	2.57	9.47	35.80	3.19	9.03	37.14	3.40	9.40
Total	571.14	52.48	9.17	747.89	71.54	9.57	810.17	84.02	10.37

Source : Department of Sugarcane, GoB

Table 4.15 : Performance of Sugar Mills in terms of Duration of Operation, Distillery Capacity and Power Generation (2016-17 to 2018-19)

Name of Sugar Mill	Duration of operation			Distillery Capacity (KLPD) in 2018-19	Cogen in MW in 2018-19
	2016-17	2017-18	2018-19		
Bagaha	122	154	165	NA	6.0
Harinagar	125	156	161	120	14.5
Narkatiaganj	125	162	173	60	10.0
Manjhaulia	111	129	149	45	—
Sasamusa	87	22	102	NA	—
Gopalganj	99	129	146	NA	—
Sidhwalia	97	115	131	NA	10.0
Riga	92	122	148	45	3.0
Hasanpur	88	115	143	NA	10.0
Lauriya	116	151	136	60	20.0
Sugauli	102	121	138	60	20.0
Average	106	125	145	390	93.5

Source : Department of Sugarcane, GoB

Dairy Industry

Since 1983, the Bihar State Milk Co-operative Federation Ltd. (COMFED) became a major institutional support for the rural households producing milk in Bihar. Operationally, COMFED has three-tier co-operative structure in Bihar – milk producers’ cooperative society at the village level, milk union at the district level, and milk federation at the state level.

In 2018-19, COMFED has inducted more societies in Supaul Milk Union in Bihar and Bokaro Dairy in Jharkhand. So, in 2018-19, 22,971 organised societies were functioning, registering a growth of 9.4 percent over 2017-18. The daily milk collection across all dairies increased from 1627.25 thousand kg per day in 2017-18 to 1931.11 thousand kg per day in 2018-19, implying a growth of 18.7 percent. Importantly, this growth was registered at all the locations of the project.

Value addition is the key in marketing activities of COMFED. Though milk sale has declined marginally between 2017-18 and 2018-19, sale of milk products like lassi, peda, paneer, gulab jamun has increased commensurately. COMFED also provides various services like artificial insemination of animal, vaccination, de-worming, seed distribution, and cattle feed distribution. Except seed distribution and De-worming, all other service provisions have registered a significant improvement in 2018-19.

Table 4.16 : Number of Dairy Cooperative Societies under Different Milk Union/Projects (2017-18 and 2018-19)

(In Number)

Location of Union/Project	2017-18			2018-19		
	Organised Societies	Working Societies	Registered Societies	Organised Societies	Working Societies	Registered Societies
Vaishali Patliputra Milk Union, Patna	4383	2726	1311	4515	2792	1337
Deshratna Dr. Rajendra Prasad Milk Union, Barauni	2272	2132	1122	2321	2145	1127
Mithila Milk Union, Samastipur	2529	2030	1172	2565	2045	1187
Tirhut Milk Union, Muzaffarpur	3521	2032	1003	3756	2298	1109
Shahabad Milk Union, Ara	3533	2368	1262	3623	2415	1275
Vikramshila Milk Union, Bhagalpur	1828	1355	346	1856	1476	356
Magadh Dairy Project, Gaya	2048	1784	247	2181	1931	333
Kosi Dairy Project, Purnea	828	726	39	996	894	51
Ranchi Dairy Project, Ranchi	60	50	12	62	48	12
Supaul Milk Union	NA	NA	NA	1077	826	170
Bokaro Dairy	NA	NA	NA	19	9	0
Total	21002	15203	6514	22971	16879	6957

Source : COMFED, GoB

Table 4.17 : Daily Milk Collection by Different Projects (2014-15 to 2018-19)

(in 000 kgs)

Union/Project	2014-15	2015-16	2016-17	2017-18	2018-19	CAGR
Vaishali Patliputra Milk Union, Patna	318.91	307.73	273.66	263.3	331.53	-0.8
Deshratna Dr. Rajendra Prasad Milk Union, Barauni	409.72	457.52	427.53	454.86	529.85	5.3
Mithila Milk Union, Samastipur	354.51	353.67	354.26	349.65	379.87	1.4
Tirhut Milk Union, Muzaffarpur	196.87	191.55	205.73	196.35	232.49	4.0
Shahabad Milk Union, Ara	257.57	258.29	199.55	189.65	225.85	-2.6
Vikramshila Milk Union, Bhagalpur	70.13	72.94	60.34	72.71	78.76	2.3
Magadh Dairy Project, Gaya	39.53	39.82	35.36	40.54	54.0	6.4
Kosi Milk Union, Supaul			21.85	18.64	32.38	14.0
Kosi Dairy Project, Purnea	29.24	41.48	16.22	17.75	28.78	0.31
Ranchi/Bokaro/Jamshedpur Dairy	13.84	17.43	17.84	23.8	37.61	22.1
Total	1690.32	1740.43	1612.34	1627.25	1931.11	2.7

Source : COMFED, GoB

Table 4.18 : Milk Procurement per Functional Dairy Cooperative Society (2014-15 to 2018-19)

(Kl. per day)

Location of Union/Project	2014-15	2015-16	2016-17	2017-18	2018-19
Patna	108.88	123.58	107.15	96.59	118.74
Barauni	206.2	232.24	209.99	213.35	247.02
Samastipur	177.17	192.1	181.86	172.24	185.76
Muzaffarpur	100.24	100.6	105.99	96.63	101.17
Ara	108.49	106.2	86.72	80.09	93.52
Bhagalpur	86.26	71.02	52.02	53.66	53.36
Gaya	35.08	30.19	22.02	22.72	27.96
Supaul	NA	NA	32.61	25.75	39.20
Purnea	30.78	42.03	28.51	24.46	32.19
Ranchi Dairy	277.64	347.17	312.98	371.16	599.38
Bokaro Dairy	NA	NA	NA	NA	982.22
All Dairies	120.59	124.18	108.67	102.11	114.41

Source : COMFED, GoB

Table 4.19 : Activities by COMFED (2014-15 to 2018-19)

Indicators	2014-15	2015-16	2016-17	2017-18	2018-19
Cooperative Societies					
Organised	18385	19543	20769	22018	22971
Operational	14189	14016	14842	15936	16879
Registered	5754	6042	6384	6643	6957
No. of Members (lakh)	9.42	10.04	10.86	11.4	11.85
Collection of Milk					
Collection of Milk (lakh kg/day)	16.9	17.4	16.13	16.27	19.31
Marketing of Products					
No. of Retail Outlet	12299	13099	15857	17726	19238
Milk (lakh litres/day)	11.52	12.18	13.45	14.55	14.36
Ghee (Tonnes)	1669	1643	1342	1513	1487
Lassi (tonnes)	4385	4103	4975	6387	8019
Peda (tonnes)	1173	1190	1314.42	1236	1316
Paneer (tonnes)	3385	3946	4300	4523	5253
Dahi (tonnes)	7498	8088	9110	10290	9411
Gulab Jamun (tonnes)	1152	1220	1365	1360	1484
Ice-Cream (tonnes)	1702	1743	1375	1577	1520
Services					
No. of Artificial Insemination Centres	3117	3275	3436	3852	4220
Artificial Insemination (lakh)	20.3	21.37	20.41	21.62	22.71
Vaccination (lakh)	15.53	18.05	17.01	12.31	15.39
De-worming (lakh)	12.92	16.46	14.3	14.49	14.29
Seed Distribution (tonnes)	930.93	1016.79	1279.53	1554.23	1333.61
Cattle Feed Distribution (tonnes)	56143	62130	53810	46889	55160

Source : COMFED, GoB

4.3 Non-Agro Based Industries

Handloom and Powerloom

In the era of automation of cloth production and early stage of adoption of Artificial Intelligence (AI) in the textile industry, handloom survives by catering to upscale markets, both at home and abroad. The weaving community also plays an important role in preserving the legacy of cultural history of the state. To preserve the cultural history of Bihar and to support the handloom weaving community, the policy of protection of the State Government has played a crucial role. Table 4.20 indicates that 13 locations in Bihar have specialised in the production of different fabrics and clothing materials. Some of the clusters also produce handloom products, exclusively for export market. Table 4.21 suggests that the State Government has been conducting training programmes to impart skill among the weavers at various locations. Since 2013-14, the State Government has been helping to organise 204 training programmes each year and the reported achievement rates ranged between 78.4 percent (2014-15) and 82.8 percent (2016-17). In 2018-19, the achievement rate was 75.9 percent. Table 4.22 reports various schemes adopted by the State Government to promote and subsidise the handloom and powerloom weavers in the state.

Table 4.20 : Handloom Concentrated Districts in Bihar

District	Products
Bhagalpur	Silk, Cotton, Furnishing cloth, Staple chadar, Exportable Silk and Linen cloth.
Banka	Tasar Silk, Exportable Silk Cloth, and Cotton towel
Gaya	Cotton Long Cloth, Bed sheet, Towel
Nalanda	Ornamental Curtain, Bed Cover, Interior decoration material and ornamented cloth
Nawada	Tasar Silk and ladies dress material, Linen
Madhubani	Fine Cotton long cloth, dhoti, shirting
Aurangabad, Rohtas	Woolen Blanket, Woolen Carpet and Sari
Kaimur	Woolen Carpet, Banarasi Sari
Patna, Siwan	Cotton cloth and Furnishing Cloth
Purnea, Katihar	Jute bags, Jute-blended material, Interior decorative material

Source : Department of Industries, Handloom, GoB

Table 4.21 : Target and Achievement of Training Programme (2013-14 to 2018-19)

(In number)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Target	204	204	204	204	204	204
Achievement	163	160	167	169	156	155
Achievement (%)	79.9	78.4	81.9	82.8	76.4	75.9

Source : Department of Industries, Handloom, GoB

Table 4.22 : Status of Ongoing Schemes for Handloom (2018-19)

Sl. No.	Name of Scheme	Objective of Scheme	Physical target	Financial target (Rs. in lakh)
1	2	3	4	5
1	The grant of power subsidy	Grant power subsidy at the rate of Rs. 3.00 per unit to powerloom weavers	-	300.00
2	Scheme for scholarship for trainees at six training centre	Training of weaving, dyeing, and designing clothes is provided to the family of handloom weavers.	144	-
3	All the powerloom of Gaya District (approx. 900) were reimbursed 60% of the fee amount deposited to the Bihar State Pollution Control Board (BSPCB) to adhere to the norms laid down by them	The compensation was given to the powerlooms so that the industry do not face loss.	-	100.00
4	10% relaxation in sell of handloom clothes as khadi	It will increase the sale of handloom products and make them popular.	-	5.00
5	Conversion of old handloom into 68" inch loom	Due to availability of 68" inch frame looms production and quality of cloth/blanket will get better.	166	44.82
6	Power Tax Yojana	Providing the modern equipment to the powerloom weavers. Contribution of the State Government in the plan of <i>In-Situ</i> upgradation of powerloom of Textile Ministry.	53	5.842
7	Scheme for buffer fund (State/ Union)	Weavers who are involved in manufacturing of colourful cloth should be paid timely for their wage	Chadar	200.00
8	Scheme for buffer fund (Sheep and Wool Union)	Provision of payment to solve the problem of delay in payment for supply of blanket/cloth by sheep and wool union to different government offices/institutions	-	50.00
9	Scheme for Working capital	Rs. 10,000 working capital will be given to operational handlooms with U.I.D mark within the state.	6727	666.00
10	Scheme for registration of handloom mark	Provision of handloom mark label for all the U.I.D mark handloom weavers, primary weaver cooperatives, regional loom weavers' association	-	15.00
Total				1386.662

Sericulture

Bihar has remarkable potential in silk-based production. Three types of silks are cultivated in Bihar — mulberry, tasar, and castor (eri). Except Tasar, Mulberry and Eri cocoon production declined and hence raw silk production has also declined significantly in 2018-19, compared to 2017-18. The mulberry cocoon production has declined by 78.04 tonnes between 2017-18 and 2018-19, which is just 43 percent of the previous year's production.

To improve the performance of sericulture, the State Government has allocated Rs. 6.00 crore in 2019-20 in the following schemes. First, an allocation of Rs 1.51 crore is made to construct sericulture farms at different locations and for providing irrigation facility. Secondly, the State Government has also felt the need to construct a Mulberry Reeling Bhawan in Kishanganj, and allocated Rs. 56.46 lakh for this purpose. Apart from that, the State Government has undertaken renovation of reeling units in Supaul. To construct administrative building, grainage building, cocoon bank at different locations, it has allocated Rs 100 lakh. Lastly, the State Government also received proposal to provide Rs 200 lakh as subsidy to mulberry and eri farmers for plantation or rearing appliances, irrigation facility and construction of rearing house, etc.

Table 4.23 : Achievements of Sericulture Sector (2013-14 to 2018-19)

Year	Type of Silk	Plantation (ha)	DFLs Rearing (lakh)	Total Cocoon Production	Raw Silk (Tonnes)
2013-14	Mulberry	117	5.07	122.73 (tonne)	15.08
	Tasar	608	7.10	386.94 (lakh)	37.89
	Castor	575	0.81	6.50 (tonne)	5.2
2014-15	Mulberry	184	5.04	162.16 (tonne)	19.5
	Tasar	5198	7.48	293.88 (lakh)	32.95
	Castor	232	1.19	10.20 (tonne)	8.16
2015-16	Mulberry	136	5.78	202.56 (tonne)	22.55
	Tasar	2325	9.21	466.00 (lakh)	42
	Castor	161	1.19	9.50 (tonne)	7.6
2016-17	Mulberry	340	5.69	191.69 (tonne)	23.49
	Tasar	1218	8.62	482.20 (lakh)	43.51
	Castor	232	1.27	12.43 (tonne)	9.94
2017-18	Mulberry	362	4.54	138.74 (tonne)	17.17
	Tasar	—	8.64	426.73 (lakh)	36.00
	Castor	276	1.31	12.10 (tonne)	9.68
2018-19	Mulberry	131	2.20	60.70 (tonne)	7.55
	Tasar	—	9.09	457.02 (lakh)	38.39
	Castor	—	1.33	10.91 (tonne)	8.73

Note : DFL = Disease Free Layings

Source : Department of Industries, Sericulture, GoB

Khadi and Village Industries

The Khadi and Village Industries Commission (KVIC), together with the KVI Board in Bihar, performs various activities to promote khadi and village industries. The major activities are — dissemination of knowledge of newer skills, transfer of technology, and research and development. The KVIC is also responsible for handling the Scheme of Fund for Regeneration of Traditional Industries (SFURTI) and Prime Minister's Employment Generation Programme (PMEGP), which started in 2008. This programme is implemented by the KVIC, KVI Board at the state level and the District Industries Centres (DIC) at the district level.

The information on performance of PMEGP in Bihar for the last three years (2016-17 to 2018-19) is presented in Table 4.24. The targets, both physical and financial, have been substantially revised in 2018-19, compared to 2017-18. The number of targeted beneficiaries has gone up from 2850 in 2017-18 to 4348 in 2018-19, an increase of 52 percent. In a similar pattern, the financial allocation has also increased from Rs 5653 lakh in 2017-18 to Rs 10,869 lakh in 2018-19, registering an increase of 93 percent. The realisation of the targets was also impressive, as 74 percent of physical target and 89 percent of financial targets were achieved in 2018-19. It is worthy to mention that DICs performed very efficiently to achieve these targets in 2018-19. Furthermore, the schemes which were initiated by the State Government in 2017-18 continue to benefit the target groups.

Table 4.24 : Performance of PMEGP (2016-17 to 2018-19)

Agencies		KVIC	KVI Board	DIC	Total
2016-17					
Target/Margin Money	Physical (Nos.)	1122 (29.9)	1122 (29.9)	1506 (40.2)	3750 (100.0)
	Financial (Rs. lakh)	2244 (29.4)	2248 (30.0)	3008 (40.1)	7500 (100.0)
Margin Money disbursed by Nodal banks	Physical (Nos.)	532 (16.5)	313 (9.7)	2389 (73.9)	3234 (100.0)
	Financial (Rs. lakh)	810.33 (9.7)	995.34 (11.9)	6530.83 (78.3)	8336.5 (100.0)
2017-18					
Target/Margin Money	Physical (Nos.)	855 (30.0)	855 (30.0)	1140 (40.0)	2850 (100.0)
	Financial (Rs. Lakh)	1695.93 (30.0)	1695.93 (30.0)	2261.24 (40.0)	5653.1 (100.0)
Margin Money disbursed by Nodal banks	Physical (Nos.)	324 (14.3)	223 (9.9)	1708 (75.7)	2255 (100.0)
	Financial (Rs. Lakh)	622.58 (9.7)	689.58 (10.8)	5095.33 (79.5)	6407.64 (100.0)
2018-19					
Target/Margin Money	Physical (Nos.)	1304 (30.0)	1304 (30.0)	1740 (40.0)	4348 (100.0)
	Financial (Rs. Lakh)	3292 (30.3)	3292 (30.3)	4285 (39.4)	10869 (100.0)
Margin Money disbursed by Nodal banks	Physical (Nos.)	342 (11.0)	277 (9.0)	2621 (80.0)	3240 (100.0)
	Financial (Rs. Lakh)	985.74 (10.0)	969.86 (10.0)	7741.23 (80.0)	9696.83 (100.0)

Note : The Figures in the parenthesis denote percent share to total

Source : Department of Industry, GoB

Chief Minister Micro and Small Industries Cluster Development Scheme

Under the Chief Minister Micro and Small Industries Cluster Development Scheme, a Detailed Project Report (DPR) was prepared to establish Common Facility Centres for 8 clusters, approved by the state level committee. Till date, Rs. 17.96 crore has been granted for the establishment of a Common Facility Centre at 7 clusters. As part of the scheme, an apparel park in Bihta (Patna) and a leather goods complex in Muzaffarpur have been proposed. The DPR of makhaana cluster in Supaul, sanitary pad cluster in Lodhipur, Sabaur, Bhagalpur have been approved by the state level committee.

Under Industrial Incentive Policy-2011 and the Bihar Industrial Investment Promotion Policy, 2016, an amount of Rs. 284.75 crore has been approved by the State Government to provide basic facilities to the industrial units. Under this scheme, Rs 200 crore has been provided to the Sales Tax Department for VAT reimbursement. Till date, an amount of Rs. 112.53 crore has been spent.

In the financial year 2018-19, under the Bihar Industrial Investment Promotion Policy, 2016, a total of 337 units were given Stage-I clearance and 142 units were given clearance for financial incentive in State Investment Promotion Board (SIPB) meetings. In 2018-19, 126 units have received funds worth Rs. 40.06 crore through SIPB.

Support Institution

Bihar Industrial Area Development Authority (BIADA)

To promote industrialisation, BIADA was constituted under the statutory provision of the Bihar Industrial Development Act, 1974. The key function of BIADA is to undertake planned development of Industrial Areas and matter appurtenant thereto in Bihar with its regional offices in Patna, Muzaffarpur, Bhagalpur and Darbhanga.

As of September, 2019, BIADA has acquired cumulatively 6061.7 acres of land and, hence, added 876.5 acres of land between October 2018 and September 2019. Of the total acquired land, 3363.77 acres (55.5 percent) has already been allotted to entrepreneurs. Between September 2018 and October 2019, the major land acquisition took place in Muzaffarpur (877.78 acres), followed by Darbhanga (148.88 acres). This also suggests that the State Government has tried to disperse industrialisation across the state, rather than encouraging its concentration in and around Patna.

To facilitate industrialisation in the state, several important reforms have been carried out by the State Government. The following are the key reforms :

- (i) Bihar Industrial Area Development Authority (BIADA) (Amendment) Act, 2017 was passed, replacing the earlier BIADA, 1974 Act.

- (ii) Various policies were formulated which included — Exit Policy, Allotment Policy, Allotment Facilitation and Surrender Policy, Lease and License Policy, and a Land Pooling Policy, as per the new BIADA (Amendment) Act, 2017.
- (iii) Industrial Area Management Committee (IAMC) has been constituted for better industrial area management.
- (iv) Provision for direct purchase of land from land owners for the establishment of new Industrial Areas.

Table 4.25 : Details of BIADA Land and Activities (September 2019)

Regional Office	Total Acquired Land & Sheds		Land Reserved for Infrastructure, Administrative Blocks, Roads etc. (acres)	Total Allotted land & Sheds		Litigated land (acres)	Total Vacant land & Sheds (Allotable)	
	Land (acres)	Constructed Sheds (Nos.)		Land (acres)	Constructed Sheds (Nos.)		Land (acres)	Constructed Sheds (Nos.)
Patna	2550.22	230	232.63	2071.77	207	133.24	102.08	23
Bhagalpur	1347.29	148	75.66	404.31	145	827.05	40.27	3
Darbhanga	874.49	144	56.16	270.20	131	427.06	121.07	13
Muzaffarpur	1289.74	158	209.19	617.49	142	350.45	112.62	16
Total	6061.74	680	573.64	3363.77	625	1737.8	376.04	55

Source : BIADA, GoB

To give an account of the extent of investment in the state thus far, about Rs 6446.05 crore was invested in 1641 production units and 33,076 people have received direct employment till 2019. It is observed that the number of production units has been increasing consistently since 2005-06. Apart from 1641 units that are working, another 315 units are under construction and will soon start production. In the 2018-19, Rs. 742.93 crore was invested in 62 production units. Food processing was the major constituent of the new production units. The food processing sector attracted Rs 601.01 crore, plastic and rubber sector attracted Rs 73.87 crore, and textile received Rs 53.69 crore. In terms of the size classification of industries, seven large-scale industries accounted for Rs 608.95 crore, about 82 percent of the total investment. The major investors were Britannia Industries Limited (Rs 205.6 crore), ABIS Exports (India) Private Ltd., UNO Digital Private Ltd., and Rakesh Masala Udyog (Rs 54.61 crore). In 2018-19, 37 small-scale enterprises invested around Rs 103.27 crore and, on an average, generated employment for 45 persons per unit. It is worthy to mention that the level and pattern of investment across different categories of enterprises have been consistent in the last two financial years.

Table 4.26 : Investment by Type of Enterprise (2017-18 and 2018-19)

Category of enterprise	No of Allotment		Investment (in Rs crore)		Employment (number)	
	2017-18	2018-19	2017-18	2018-19	2017-18	2018-19
Micro	23	17	19.93	10.97	397	302
Small	53	37	244.83	103.27	2316	1658
Medium	2	1	14.63	19.73	124	60
Large	3	7	440.3	608.96	448	2313
Total	81	62	719.71	742.93	3285	4333

Source : BIADA, GoB

Table 4.27 : Detailed Information on Investment by Sector (2017-18 and 2018-19)

Category of enterprise	No of Allotment		Investment (in Rs Crore)		Employment (number)	
	2017-18	2018-19	2017-18	2018-19	2017-18	2018-19
High Priority Sector						
Food Processing	39	34	141.54	601.00	1507	3017
Textile	3	4	3.94	53.69	44	471
Leather	1	11	780.7	0.19	8	5
IT/ITES/ESDM	2	0	1.54		48	0
Priority Sector						
Plastic & Rubber	24	19	57.23	73.87	949	676
Small Machine Manufacturing	5	1	64.82	0.49	243	15
Health Care	4	3	12.01	13.68	261	149
Renewable Energy Sector	1	0	1.78	0	35	0
Tech Education	0	0	0	0	0	0
Tourism	0	0	0	0	0	0
Non-Priority	2	0	358.77	0	192	0
Total	81	62	719.71	742.93	3285	4333

Note : IT = Information Technology; ITES = Information Technology Enabled Services; ESDB = Electronic System Development and Maintenance

Source : BIADA, GoB

Udyog Mitra

Over the years, Udyog Mitra has played a pivotal role in promoting industrialisation in Bihar. Udyog Mitra provides consultancy services to prospective industrialists to establish and/or expand their industry, make required project profile, provide necessary information and address various

issues that arise during the operation of industrial units. Simultaneously, Udyog Mitra, along with industrialists, policy makers and researchers also organise seminars, capacity building activities and disseminate information regarding industries. It is interesting to note that Udyog Mitra was able to spend the whole of its allocation in last three years (2016-17 to 2018-19). Major activities performed by Udyog Mitra during 2018-19 are as follows:

- Udyog Mitra has provided consultancy services to 1834 prospective industrialists to establish industries and also helped them to prepare their project proposal.
- Udyog Mitra has helped 136 industrialists by answering their queries through online communication portal.
- Additionally, the CEO of Udyog Mitra has signed MOUs with Central Institute of Plastic Engineering and Technology (CIPET), Footwear Design and Development Institute (FDDI), National Institute of Technology (NIT), and Institute of Entrepreneurship Development (IED) for skill development training in compliance with departmental orders.
- Under the 'Chief Minister Scheduled Castes and Scheduled Tribes Entrepreneurship Development' programme, the relevant brochures, standees and pamphlets were prepared by Udyog Mitra and distributed at every District Industries Centre.

Table 4.28 : Physical and Financial Achievements of Udyog Mitra (2011-12 to 2018-19)

Year	Amount Allotted (Rs. lakh)	Amount Spent (Rs. lakh)	Amount Spent (Percentage)	No. of Entrepreneurs benefitted
2011-12	100.00	67.48	67.5	753
2012-13	104.00	78.73	75.7	596
2013-14	120.00	101.13	84.3	583
2014-15	98.60	88.94	90.2	664
2015-16	110.30	92.37	83.8	906
2016-17	110.00	110.29	100.0	1098
2017-18	140.00	140.00	100.0	819
2018-19	140.00	140.00	100.0	1834

Source : Udyog Mitra, GoB

Mining and Quarrying

The share of mining and quarrying in the GSDP of Bihar is very small and this sector's role in generating economic growth for Bihar is rather limited. However, in recent times, the revenue from the mining and quarrying sector has increased substantially, thanks to various steps by the

State Government. For instance, in 2018-19, the State Government aimed to collect Rs 1600 crore revenue from the mining sector, and the actual collection was Rs 1556.77 crore (97.3 percent of the target). Moreover, the collection of revenue in 2018-19 was 43.8 percent more than that in 2017-18. The major revenue sources were sand, works department, stone and crusher, bricks, and others. Between 2017-18 and 2018-19, the revenue collected from sand mining, stone crushing, and bricks increased by 87, 27 and 5 percent, respectively. This essentially indicates an increase in construction works in the state. The State Government has been using Geo-mapping application to track revenue collection from brick kilns. The State Government has also been pursuing the sustainable Sand and Stone Mining Policy to minimise the impact of mining activities on the environment.

Table 4.29 : Targets and Collection of Revenue from Minerals in Bihar (2014-15 to 2018-19)

(in Rs Crore)

Year	Target	Collection	Ratio (in percent)
2014-15	750.0	859.34	114.58
2015-16	1000.0	971.0	97.1
2016-17	1100.0	994.1	90.37
2017-18	1350.0	1082.67	80.2
2018-19	1600.0	1556.77	97.3

Source : Department of Mines and Geology, GoB

Table 4.30 : Revenues from Minerals in Bihar (2014-15 to 2018-19)

(Rs. lakh)

Sources	2014-15	2015-16	2016-17	2017-18	2018-19
1. Major Minerals	107.3	99.1	57.5	152.8	588.6
2. Minor Minerals					
(i) bricks	2659.1	4295.6	3639.9	3934.5	4154.6
(ii) sand	50542.1	42806.3	45765.2	41066.8	76740.7
(iii) stone + crusher	7516.9	11097.9	11140.6	12784.9	16283.6
(iv) morum	0.5	56.4	0.0	0.0	0.0
(v) soil	270.3	271.4	833.4	485.4	702.4
(vi) Works Deptt.	24074.5	36413.5	35999.8	41893.1	43687.7
(vii) Transit Pass	42.4	40.7	25.2	1039.1	0.0
(viii) Others	278.7	626.2	1564.9	1636.5	6382.7
3. Arrears	443.3	1392.9	383.7	172.8	7137.0
Total	85935.10	97100.0	99410.2	108265.9	155677.3

Source : Department of Mines and Geology, GoB

Tourism

Both at the national and international level, the attractive tourist spots in Bihar are generally known to be the historical sites at Bodhgaya, Rajgir, Nalanda and Vaishali. But this perception about Bihar is untrue. Taking into account other places of tourist attractions in Bihar, the State Government has planned as many as eight tourist circuits in the state — (i) Buddhist Circuit, (ii) Jain Circuit, (iii) Ramayan Circuit, (iv) Shiv Shakti Circuit, (v) Sufi Circuit, (vi) Sikh Circuit, (vii) Gandhi Circuit, and (viii) Eco Circuit. In the last decade, the Department of Tourism, along with the Union Ministry of Tourism, has made provisions for additional amenities and tourist-friendly infrastructure along different tourist circuits.

To promote tourism, the State Government has generously allocated funds to the Department of Tourism during the recent years, and the expenditure as a percentage of the budget has been quite high throughout this period, except 2018-19. In 2019-20, a sum of Rs 275 crore was allocated to the Department, which was three times more than the allocation of 2018-19. In terms of utilisation, Rs 88.56 crore has been spent by September 2019.

Table 4.31 : Expenditure of Department of Tourism (2012-13 to 2018-19)

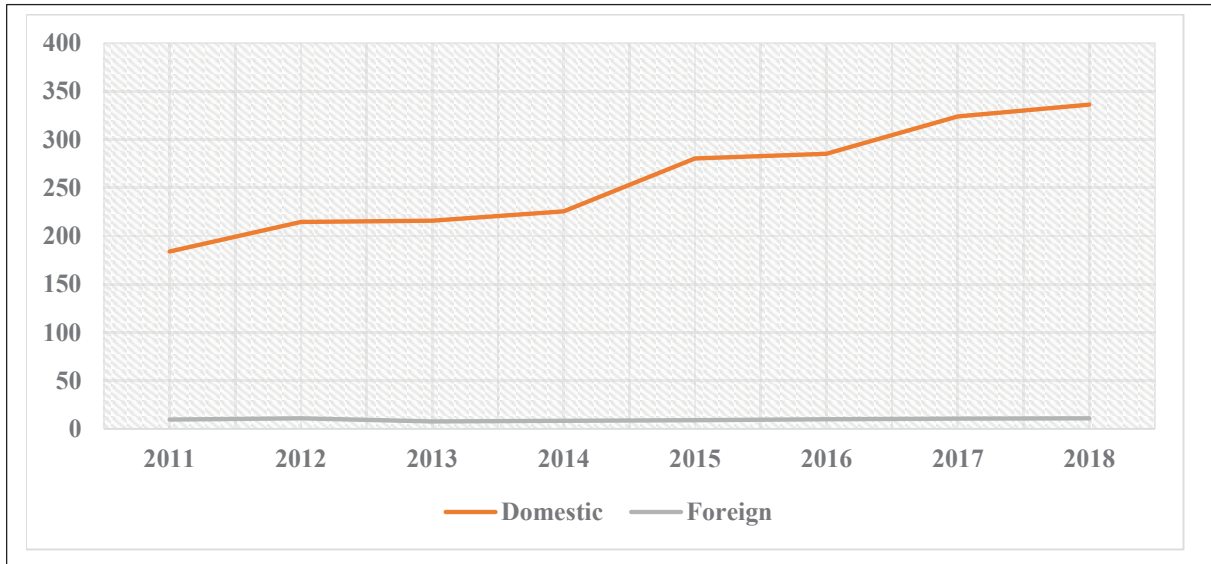
Year	Approved Budget (Rs. Crore)	Expenditure (Rs. Crore)	Expenditure as percentage of Budget
2012-13	100.1	99.3	99.2
2013-14	65.5	59.4	90.7
2014-15	118.1	87.4	74.0
2015-16	66.0	65.4	99.0
2016-17	94.5	86.4	91.5
2017-18	91.0	76.7	84.3
2018-19	84.6	47.2	55.8
2019-20 up to Sep 2019	275.0	88.56	32.2

Source : Budget Document, GoB

The number of tourist arrivals in Bihar has increased substantially from 183.96 lakh in 2011 to 336.21 lakh in 2018, growing at an annual rate of 7.8 percent. Further, between 2011 and 2018, the annual growth rate of foreign tourists was 1.4 percent. It is important to mention that the majority of tourists arrived in Bihar for religious and heritage tourism. To realise the potential of other types of tourism, the State Government has been encouraging the development of nature and adventure tourism to attract tourists from different parts of the world.

It is important to note that the growth of footfall of foreign tourists has a positive impact on the balance of payment of our country. Foreign tourists, along with domestic ones, can also contribute substantially to the generation of employment opportunities, increase in income of the local service providers, reduce incidence of migration and development of real estate at the tourist destinations.

Chart 4.1 : Number of Domestic and Foreign Tourist Arrivals



Source : Department of Tourism, GoB

The Department of Tourism of the State Government has undertaken various projects worth Rs 45.67 crore in 2018-19. This includes renovation and beautification of Baba Ganinath Temple in Vaishali. For this purpose, a sum of Rs 7.62 crore was allocated. For Sitamarhi, an amount of Rs 10.68 crore was allocated for beautification and creation of amenities for tourists. In Bhojpur, Vir Kunwar Singh Vijay Stambh will be constructed at four locations (Shivpur Ghat, Bibiganj, Kayam Nagar, Barasingha Buzurg). For this purpose, an amount of Rs 7.78 crore was earmarked by the State Government.

CHAPTER - V

LABOUR, EMPLOYMENT AND MIGRATION

Labour was the first price, the original purchase-money that was paid for all things. It was not by gold or by silver, but by labour, that all wealth of the world was originally purchased.

—Adam Smith

Abstract

Bihar is one of the prominent labour surplus states in India. Bihar supplies both skilled and unskilled labour to other parts of the country, as well as to the foreign ones. Data from different official sources suggest that Work Participation Rate in Bihar is lower than the all-India average, specially for women workers. In Bihar, different government agencies and institutions are trying to create additional employment opportunities for different sections of the working-age population. This chapter provides the detailed information on the size and type of labour force, employment opportunity and the efforts of the State Government initiatives to ensure labour welfare. It also discusses the initiatives of the State Government to abolish the child and bonded labour and ensure their rehabilitation. In Bihar, different state agencies and commissions are also conducting skill development programmes for the youth to improve their employability.

Bihar is a labour surplus state, and the welfare of the working-age population is of paramount importance. Being an agrarian economy, a large section of the working-age population is engaged in agriculture and allied activities. Historically, due to low industrial development and existence of few skill-based services sector, a large share of this working-age population has also been migrating to other states and foreign countries in search of remunerative employment opportunities. Over the period, the nature and geography of migration have undergone qualitative changes. The increase in expenditure on infrastructure in Bihar has slowed the migration of labourers from the State.

5.1 Size of Labour Force and Work Force

Before discussing the State Government's initiatives to improve the conditions of the working-age population of the state, it is relevant to discuss the size and composition of the labour force in Bihar vis-à-vis the rest of the country. Table 5.1 suggests that the labour force participation rate (LFPR) for males and females in Bihar was lower than the all-India average during 2017-18. Importantly, the LFPR for females was abysmally low in Bihar compared to the all-India average. For example, female LFPR in rural Bihar was just 3.9 percent compared to 24.6 percent at the all-India level. Similarly, LFPR for urban females was 6.4 percent in Bihar, compared to 20.4 percent at the all-India level. Such abysmally low level of LFPR of females is a matter of concern for the policymakers. The reasons for such a low level of LFPR for females are multidimensional — social, economic and cultural. For male workers also, the LFPR in Bihar was the lowest among all the states in both rural and urban areas.

The data on worker population ratio (WPR) for 2017-18, which is defined as the percentage of employed persons in the population, draws a similar picture (Table 5.2). The WPR for both male and female workers has been very low in Bihar vis-à-vis the all-India average. In rural Bihar,

Table 5.1 : Labour Force Participation Rate (LFPR) by State (2017-18)

State	Rural			Urban		
	Male	Female	Person	Male	Female	Person
Andhra Pradesh	79.5	48.4	63.3	78.3	30.7	52.8
Assam	80.9	12.3	47.7	75.3	15.4	45.7
Bihar	68.8	3.9	38.2	66.5	6.4	38.2
Chhattisgarh	79.6	54	67.1	77.6	30.5	54.0
Gujarat	78.7	22.5	51.7	76.6	16.2	47.1
Haryana	73.9	14.7	45.5	74.8	13.7	45.5
Jharkhand	75.7	15.7	46.3	66.9	14.3	40.2
Karnataka	80.5	28.2	54.0	73.8	22.8	48.0
Kerala	71.1	25.9	46.6	68.9	27.3	46.4
Madhya Pradesh	81.5	35.3	59.3	75.4	21.0	49.0
Maharashtra	75.4	37.7	56.8	74.2	21.6	48.2
Odisha	79.4	20.0	49.0	74.6	16.9	44.8
Punjab	72.9	14.0	44.5	78.2	18.2	49.6
Rajasthan	73.9	30.8	52.6	72.2	14.5	44.8
Tamil Nadu	78.5	39.0	58.3	76.7	27.6	51.4
Telangana	73.7	39.2	56.6	76.7	22.9	49.9
Uttar Pradesh	75.6	14.2	44.9	73.4	11.1	43.4
West Bengal	81.3	19.8	50.4	75.1	23.0	49.2
All-India	76.4	24.6	50.7	74.5	20.4	47.6

Source : Periodic Labour Force Survey (MoSPI) NSO, 2018

the WPR for male workers was 64.0 percent, almost 8 percent lower than the all-India average. The WPR for female workers was abysmally low at 3.9 percent in rural Bihar. However, the WPR for female workers in urban Bihar was significantly higher at 6.1 percent, compared to WPR for rural females. Given the size of 2.69 crore of female population in the age group of 15 years and above, only 4.1 percent (10.75 lakh females) were engaged in any kind of gainful economic activities in Bihar. It clearly suggests that an overwhelming majority of the employable population in Bihar has been out of work. It is necessary for the State Government to draw alternative strategies to harness the available human resources in the state which can lead to higher levels of social and economic development.

Table 5.2 : Worker Population Ratio (WPR) by State (2017-18)

State	Rural			Urban		
	Male	Female	Person	Male	Female	Person
Andhra Pradesh	75.9	47.3	61	74	27.9	49.3
Assam	75.0	10.6	43.8	71.3	13.6	42.8
Bihar	64.0	3.8	35.6	60.3	6	34.7
Chhattisgarh	77.5	52.8	65.5	73	27	50
Gujarat	74.4	21.6	49.1	73.4	15.5	45.1
Haryana	67.2	13.2	41.3	70.3	12.1	42.4
Jharkhand	70.1	15.1	43.2	60.1	12.6	36
Karnataka	77.2	27.2	51.9	69.2	21.2	44.9
Kerala	67	20.8	41.9	64.4	19.8	40.2
Madhya Pradesh	78	34.9	57.3	69.5	19.6	45.3
Maharashtra	72.8	36.7	55	69.6	19.1	44.7
Odisha	73.6	18.9	45.6	69.1	14.8	41.1
Punjab	67.7	12.5	41.1	73.1	15.7	45.8
Rajasthan	69.7	30.4	50.3	67.4	13.1	41.5
Tamil Nadu	71.6	36.7	53.7	71.9	25.2	47.9
Telangana	68.3	37.3	52.9	70.2	20	45.2
Uttar Pradesh	71	14	42.5	66.5	9.9	39.3
West Bengal	77.7	19.5	48.5	70.2	21.6	46.1
All-India	72	23.7	48.1	69.3	18.2	43.9

Source : Periodic Labour Force Survey (MoSPI) NSO, 2018

Table 5.3 explains the unemployment rate across the states of India during 2017-18. The unemployment rate is defined as the percentage of persons unemployed among the persons in the labour force (that includes both employed and persons). At the all-India level, the unemployment rate was 5.7 percent for rural males and 6.9 percent for urban males. Further, the unemployment rate was 3.8 percent for rural females and 10.8 percent for urban females at the all-India level. In Bihar, the unemployment rate for male workforce was higher than that at the all-India level, while the female unemployment rate was much lower than the all-India level. The pattern was similar in both urban and rural areas. A plausible reason for the low unemployment rate among females is that majority of them cannot afford to be unemployed due to their poverty and, as such, are forced to accept employment even at a very low wage.

Table 5.3 : Unemployment Rate by State (2017-18)

State	Rural			Urban		
	Male	Female	Person	Male	Female	Person
Andhra Pradesh	4.5	2.3	3.6	5.5	9.0	6.6
Assam	7.3	14	8.1	5.3	11.4	6.3
Bihar	7.0	2.3	6.8	9.3	6.2	9.0
Chhattisgarh	2.7	2.1	2.5	5.9	11.4	7.5
Gujarat	5.4	4.1	5.2	4.2	4.3	4.2
Haryana	9	9.9	9.2	6.0	12.0	6.9
Jharkhand	7.4	3.7	6.8	10.2	11.5	10.4
Karnataka	4.0	3.4	3.9	6.3	7.2	6.5
Kerala	5.9	19.6	10.0	6.6	27.4	13.2
Madhya Pradesh	4.3	1.2	3.4	7.8	6.9	7.6
Maharashtra	3.4	2.8	3.2	6.2	11.4	7.4
Odisha	7.3	5.3	6.9	7.3	12.7	8.4
Punjab	7.2	10.3	7.6	6.5	13.5	7.7
Rajasthan	5.6	1.2	4.4	6.7	9.9	7.2
Tamil Nadu	8.8	6.0	7.9	6.2	9.0	6.9
Telangana	7.2	5.0	6.5	8.5	12.6	9.4
Uttar Pradesh	6.1	1.5	5.4	9.4	10.6	9.5
West Bengal	4.4	1.7	3.8	6.6	5.9	6.4
All-India	5.7	3.8	5.3	6.9	10.8	7.7

Source : Periodic Labour Force Survey (MoSPI) NSO, 2018

Pattern of Employment

The broad categories of status in employment are — self-employed (own account worker, employer, and helper in the household enterprise), regular wage/salary, and casual labour. Tables 5.4 and Table 5.5 suggest that majority of the workers were self-employed, especially as own-account worker across all the states of India during 2017-18. In Bihar, 55.9 percent males were self-employed, which is slightly higher than the all-India average (52.3 percent). The share of casual labour in Bihar (32.1 percent) was significantly higher than the all-India level (24.3 percent). The proportion of regular wage/salaried male was the lowest in Bihar (11.9 percent) compared to all other states in India. The small proportion of regular wage/salaried male workers signifies that male workers of Bihar have limited options in stable and long-term employment.

Table 5.4 : Percentage Distribution of Male Workers by Status of Employment by State (2017-18)

State	Self-employed			Regular wage/salary	Casual labour	All
	Own account worker, employer	Helper in household enterprise	All self employed			
Andhra Pradesh	40.3	5.7	46.1	21.0	33.0	100.0
Assam	55.6	5.9	61.5	20.3	18.2	100.0
Bihar	50.4	5.5	55.9	11.9	32.1	100.0
Chhattisgarh	45.8	17.9	63.7	17.8	18.4	100.0
Gujarat	43.2	11.5	54.7	29.9	15.5	100.0
Haryana	38.8	5.3	44.1	36.9	19.0	100.0
Jharkhand	51.4	8.3	59.7	15.4	24.9	100.0
Karnataka	41.4	9.0	50.3	25.3	24.4	100.0
Kerala	40.1	0.7	40.8	27.5	31.7	100.0
Madhya Pradesh	43.7	13.8	57.5	15.7	26.8	100.0
Maharashtra	39.3	8.5	47.8	31.7	20.6	100.0
Odisha	52.5	6.8	59.3	15.7	25.1	100.0
Punjab	40.2	6.7	47.0	31.5	21.5	100.0
Rajasthan	50.5	9.5	60.0	22.4	17.6	100.0
Tamil Nadu	30.4	2.1	32.4	35.5	32.1	100.0
Telangana	42.6	5.1	47.7	32.0	20.3	100.0
Uttar Pradesh	50.1	11.8	61.9	15.2	22.8	100.0
West Bengal	40.5	5.6	46.1	20.7	33.1	100.0
All-India	44.1	8.2	52.3	23.4	24.3	100.0

Source : Periodic Labour Force Survey (MoSPI) NSO, 2018

The pattern of employment for female workers was strikingly different (Table 5.5). The proportion of self-employed workers was significantly lower at 33.9 percent in Bihar compared to 51.9

percent at the all-India level in 2017-18. Interestingly, the share of female workers as a helper in household enterprises within the self-employed status was only 6.4 percent in Bihar compared to 31.7 percent at the all-India level. One possible reason for such low level of self-employment is that the small size of operational landholdings or landlessness among rural households is unable to generate employment opportunities even for family labour, particularly for female family members. Secondly, socio-cultural restrictions on women belonging to certain caste and classes force them to stay out of the economic activities even within their own farms and remain confined to do household chores. The lower self-employment implied that the proportion of women in the regular wage/salary and casual labour status was higher in Bihar compared to the all-India averages. Given the small size of female labour force participation rate (as mentioned in Table 5.1), the majority of female workers belonging to the regular wage/salary and casual labour were engaged in the services sector.

Table 5.5 : Percentage Distribution of Female Workers by Employment Status by State (2017-18)

State	Self-employed			Regular wage/salary	Casual labour	All
	Own account worker, employer	Helper in household enterprise	All self employed			
Andhra Pradesh	17.3	25.0	42.3	14.2	43.5	100.0
Assam	11.9	8.5	20.4	59.3	20.3	100.0
Bihar	27.5	6.4	33.9	32.9	33.3	100.0
Chhattisgarh	8.9	61.5	70.4	7.9	21.7	100.0
Gujarat	30.2	24.6	54.9	23.1	22.1	100.0
Haryana	34.6	7.7	42.3	27.8	30.0	100.0
Jharkhand	18.0	50.6	68.6	14.1	17.3	100.0
Karnataka	16.9	23.5	40.4	25.8	33.8	100.0
Kerala	21.9	7.7	29.6	47.5	22.9	100.0
Madhya Pradesh	9.7	47.9	57.6	10.6	31.8	100.0
Maharashtra	12.2	32.8	45.1	21.8	33.1	100.0
Odisha	15.0	35.3	50.3	14.2	35.5	100.0
Punjab	31.9	8.4	40.3	45.2	14.5	100.0
Rajasthan	22.1	57.9	80.0	8.6	11.4	100.0
Tamil Nadu	17.4	16.0	33.5	30.1	36.4	100.0
Telangana	23.4	25.1	48.5	17.9	33.7	100.0
Uttar Pradesh	28.8	44.5	73.4	13.8	12.9	100.0
West Bengal	32.1	13.8	45.9	27.2	26.9	100.0
All-India	20.2	31.7	51.9	21.0	27.0	100.0

Source : Periodic Labour Force Survey (MoSPI) NSO, 2018

The distribution of workers (for both males and females) across major industries in 2017-18 is discussed in Table 5.6. In Bihar, major employment-generating industries for working males were — agriculture, forestry and fishing (44.6 percent), construction (17.1 percent), wholesale and retail trade, repair of vehicles (12.3 percent), and manufacturing (9.3 percent). For female workers, major employment-generating industries were — agriculture, forestry and fishing (53.6 percent), education (25.7 percent), and accommodation and food service activities (5.2 percent). It can be

Table 5.6 : Percentage Distribution of Workers by Industry for Bihar and all-India (2017-18)

Industry	Male		Female		Person	
	Bihar	All-India	Bihar	All-India	Bihar	All-India
Agriculture, forestry and fishing	44.6	40.2	53.6	57.0	45.1	44.1
Mining and quarrying	0.1	0.5	0.0	0.2	0.1	0.4
Manufacturing	9.3	12.0	3.2	12.5	8.9	12.1
Electricity, gas, steam and air conditioning supply	0.1	0.4	0.0	0.1	0.1	0.3
Water supply; sewerage, waste management and remediation activities	0.0	0.3	0.0	0.1	0.0	0.3
Construction	17.1	13.7	2.8	5.0	16.3	11.7
Wholesale and retail trade; repair of motor vehicles and motorcycles	12.3	11.7	4.1	4.8	11.8	10.1
Transportation and storage	3.8	6.3	0.0	0.3	3.6	4.9
Accommodation and Food service activities	1.7	2.0	5.2	1.5	1.9	1.9
Information and communication	0.6	1.1	0.1	0.7	0.5	1.0
Financial and insurance activities	0.9	1.1	0.3	0.8	0.9	1.1
Real estate activities	0.2	0.3	0.0	0.1	0.2	0.2
Professional, scientific and technical activities	0.9	0.9	0.1	0.5	0.9	0.8
Administrative and support service activities	1.2	1.4	0.5	0.6	1.2	1.2
Public administration and defence; compulsory social security	0.6	1.8	0.9	1.0	0.6	1.6
Education	2.9	2.6	25.7	7.6	4.1	3.8
Human health and social work activities	0.7	0.8	1.2	2.5	0.8	1.2
Arts, entertainment and recreation	0.6	0.3	0.0	0.1	0.6	0.3
Other service activities	2.0	2.0	0.5	1.7	2.0	1.9
Activities of households as employers; undifferentiated goods and services producing activities of households for own use	0.6	0.5	1.9	3.0	0.7	1.1
Activities of extraterritorial organizations and bodies	0.0	0.0	0.0	0.0	0.0	0.0
All	100.0	100.0	100.0	100.0	100.0	100.0

Source : Periodic Labour Force Survey (MoSPI) NSO, 2018

observed from Table 5.6 that the pattern of engagement of male workers in various industries of Bihar had similarity with the all-India pattern. However, the pattern of engagement of female workers in Bihar was strikingly different from that of the all-India pattern. For instance, in Bihar, after agriculture, forestry and fishing, the most important employment provider to the female workers was education, contrary to the common perception that construction or manufacturing would be the second largest employment provider to the female workers. As data suggest, only 3.2 percent of female workers were engaged in manufacturing in Bihar, compared to 12.5 percent at the all-India level. The large share of female workers engaged in the education industry manifests the success of the state-sponsored schemes and programmes currently underway in Bihar. Given the small number of female workers in Bihar, a significantly large fraction of them were engaged in the services sector, the sector where remuneration and work environment are relatively better. The state has sought to increase women's formal employment through 35 percent reservation in all government jobs in the state. The State Government had announced reservation of 50 percent for women in cooperative societies and in Panchayat to improve the female LFPR in the state.

Migration

The economic history of India confirms that Bihar has been an uninterrupted source of migrant workers at different stages of economic and social development in India. The workers (skilled, semi-skilled, unskilled) have migrated to different parts of India to work as labour for both agricultural and industrial growth. Historically, migration to international locations has also been observed. The data from Census 2011 suggest that workers from Siwan, Gopalganj, West Champaran and East Champaran districts in Bihar often migrate to the gulf countries. In India, most of the migrant workers come from Uttar Pradesh, Assam, Odisha and Bihar and their most favoured destinations have been the economically prosperous states like Maharashtra, Delhi, Punjab, Haryana and Karnataka.

Census 2011 provides information on number of migrants and their reasons for migration. Table 5.7 presents the number of migrants in Bihar and India by gender and reasons for migration. The major reasons of migration are work/employment, business, education, marriage, moved after birth, moved with the household, etc. In Bihar, 75 percent of total migration took place due to marriage, compared to 46 percent at the all-India level. Only 2.9 percent of total migration took place due to work/employment and business. Of the total number of migrating people due to marriage, 98 percent were women. Moreover, of the total migrating people due to work, employment and business, 76 percent of them were men. These two patterns indicate that in India, more specifically in Bihar, migration due to social norms and customs has been overwhelmingly dominant over economic reasons of migration. Secondly, migration of women has been primarily

controlled by social and cultural factors, and the migration of men has been determined by economic factors.

Table 5.7 : Reason and Gender-wise Migration in India and Bihar (2011 Census)

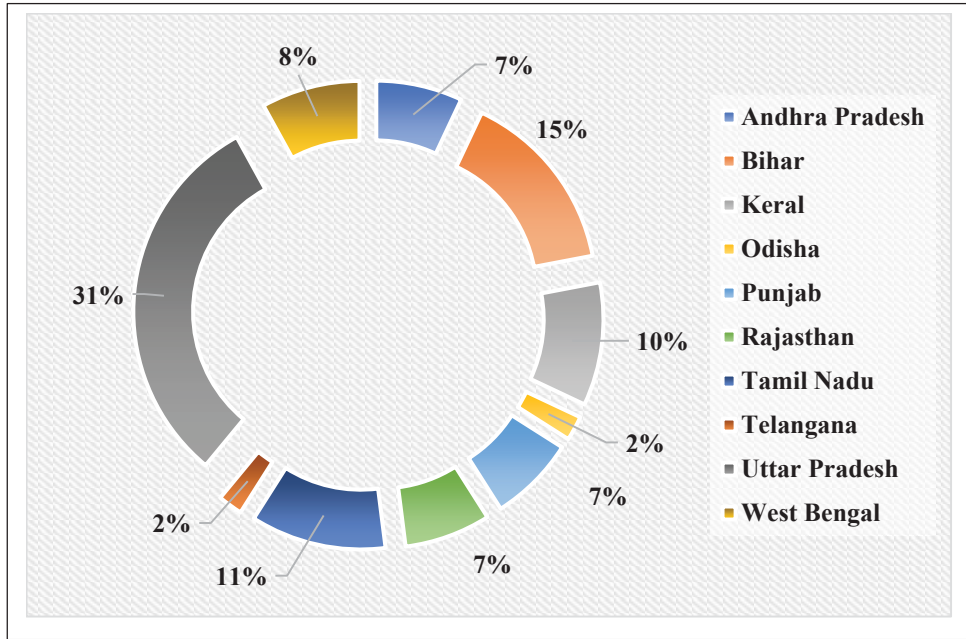
(Fig. in 000')

Category		India			Bihar		
		Total	Rural	Urban	Total	Rural	Urban
Work/Employment	Persons	41,423	26,736	13,394	707	288	419
	Males	35,017	22,673	11,382	539	166	373
	Females	6,406	4,064	2,011	167	121	46
Business	Persons	3,590	2,005	1,438	84	48	36
	Males	2,683	1,501	1,088	39	12	27
	Females	907	504	350	45	35	10
Education	Persons	5,458	3,403	1,784	122	48	74
	Males	3,296	2,060	1,077	74	23	51
	Females	2,161	1,344	707	48	25	23
Marriage	Persons	211,186	175,816	27,764	20,440	18,719	1,721
	Males	5,347	4,242	879	380	339	41
	Females	205,840	171,574	26,885	20,060	18,380	1,680
Moved after birth	Persons	33,856	18,352	14,098	293	183	110
	Males	20,079	11,189	8,057	177	108	69
	Females	13,777	7,162	6,041	116	75	41
Moved with household	Persons	65,960	37,684	25,071	1,268	519	749
	Males	29,680	16,991	11,132	605	264	341
	Females	36,280	20,693	13,940	663	255	408
Others	Persons	94,314	31,118	22,806	4,331	3,463	868
	Males	50,044	14,867	12,347	2,023	1,543	479
	Females	44,270	16,251	10,459	2,308	1,919	389
Total migrants	Persons	455,788	295,114	106,356	27,245	23,267	3,978
	Males	146,146	73,523	45,962	3,837	2,457	1,381
	Females	309,642	221,592	60,394	23,407	20,810	2,597

Source : Registrar General & Commissioner of Census, India, Census 2011

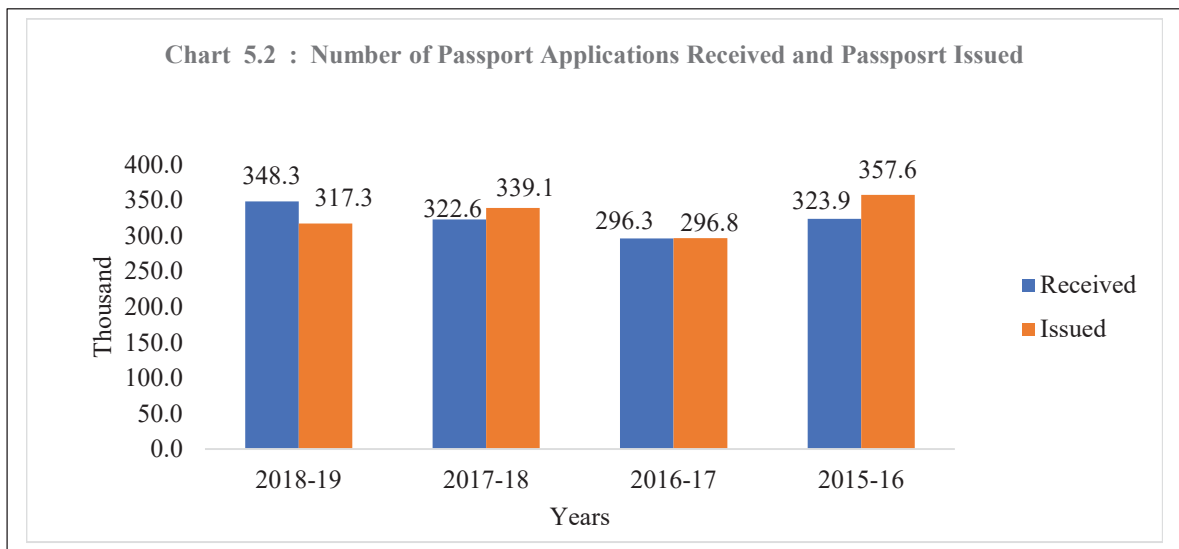
As regards international migration, one can get some indirect evidence from the emigration clearances at the Indian airports. As per this data, Bihar accounted for 15 percent of emigration clearance, which is the second highest after Andhra Pradesh (31 percent). The overall scenario is presented in Chart 5.1, presenting state-wise data on emigration clearances.

Chart 5.1 : State-wise Emigration Clearances Granted, 2011-16



MEA data, 2011-2016 (Cross references : Indian Labour Migration Update 2018)

Yet another indicator of international migration is the number of passport application received and issued from the Regional Passport Office in Patna. The relevant data is presented in Chart 5.2 for the years 2015-16 to 2018-19. This figure shows that there is considerable variation over the years for the number of passports issued. The highest (348.3 thousand) number of applications for passport was received in 2018-19, while the highest (357.6 thousand) number of passports were issued in 2015-16, followed by 2017-18 (339.1 thousand). On an average, the number of passports issued from Regional Passport Office in Patna is more than 3 lakhs per year and it is indeed a large number.



Sources : Ministry of External Affairs, Regional Passport Office, Patna

As regards inter-district variation with respect to issuance of passport, Table 5.8 suggests that a significantly large share of the passport was issued to the residents from Siwan (13.1 percent), Gopalganj (10.8 percent), Patna (11 percent) and Aurangabad (8 percent). These four districts together accounted for 42.9 percent of the total passport issued in 2018-19. One can safely assume that this inter-district disparity is valid for other years also.

Table A 5.1 (Statistical Appendix) shows the district-wise number of passport application received by the Regional Passport Office, Patna and passports issued during 2016-17 to 2018-19. It needs to be clarified that, in some cases, the number of passports issued was higher than the number of passport applicants; this is because of the backlog in issuance of the passport. The number of applications from Siwan and Gopalganj was much higher compared to other districts.

Table 5.8 : Districtwise Number of Passports Issued (2018-19)

District	No. of Passport ('000)	District	No. of Passport ('000)
Patna	34.0 (11.0)	Darbhangha	10.1 (3.2)
Nalanda	4.6 (1.5)	Madhubani	9.6 (3.0)
Bhojpur	5.9 (1.9)	Samastipur	5.1 (1.6)
Buxar	6.1 (1.9)	Begusarai	4.8 (1.5)
Rohtas	6.8 (2.2)	Munger	2.2 (0.7)
Kaimur	2.0 (0.6)	Sheikhpura	1.0 (0.3)
Gaya	7.9 (2.5)	Lakhisarai	1.1 (0.4)
Jehanabad	1.6 (0.9)	Jamui	2.9 (0.9)
Arwal	1.2 (0.4)	Khagaria	1.4 (0.4)
Nawada	4.9 (1.5)	Bhagalpur	5.0 (1.6)
Aurangabad	25.4 (8.0)	Banka	1.1 (0.4)
Saran	13.8 (4.3)	Saharsa	1.9 (0.6)
Siwan	41.7 (13.1)	Supaul	2.8 (0.9)
Gopalganj	34.2 (10.8)	Madhepura	1.1 (0.3)
W. Champaran	317.3 (4.5)	Purnia	7.0 (2.2)
E. Champaran	12.7 (4.0)	Kishanganj	4.7 (1.5)
Muzaffarpur	13.6 (4.3)	Araria	4.8 (1.5)
Sitamarhi	7.3 (2.3)	Katihar	4.6 (1.5)
Sheohar	0.9 (0.3)		
Vaishali	6.3 (2.0)	Bihar	337.4

Note : Figures in bracket denote percentage share

Source : Regional Passport Office, Patna

It is well known that majority of the migrants from Siwan and Gopalganj went to the gulf countries for work. One can also safely assume that, over the years, the aspirants have already established a strong network to continue the flow of migration to the gulf countries.

5.2 Initiatives of the State Government for Labour

Over the years, the State Government has undertaken several measures to improve the livelihood and working conditions of various sections of workers. This Section presents the details of some of these measures.

Bonded Labour Rehabilitation Scheme (BLRS)

The Bonded Labour System (Abolition) Act, 1976 has entrusted the State Governments with the responsibility to free bonded labourers from various forms of oppression and then ensure their rehabilitation. To support the State Governments, the Central Government initiated a scheme in 1978, known as the Centrally Sponsored Scheme for Rehabilitation of Bonded Labour. Later, the Central Government revamped the old scheme in 2016. Under the revised scheme, the Central Government would bear the entire burden of financial rehabilitation assistance. The financial assistance components for the freed bonded labourers are categorised as follows:

First Category : Rescued adult male bonded labourers would be given financial assistance of Rs. 1.00 lakh for rehabilitation. This financial assistance is given to the beneficiaries either in terms of annuity plan or one-time cash transfer.

Second Category : This category includes specifically defined bonded labourers, such as orphaned children, children and women who are forcibly engaged in bonded labour and children who are rescued from a nexus of organised or forced begging. Under this category, a sum of Rs 2.00 lakh is given to the rescued bonded labourer, of which Rs. 1.25 lakh is deposited in annuity plan in the name of the rescued labourer and the rest of the amount, Rs 75,000 is deposited in the bank account of the rescued labourer.

Third Category : This category includes transgender, children and women who have been rescued from sexual exploitation from brothels, massage parlours or placement agencies. They are provided Rs. 3.00 lakh as financial compensation, of which Rs 2.00 lakh is provided as annuity plan and the remaining Rs. 1.00 lakh is deposited in the bank account of the rescued person.

Apart from financial assistance, the scheme also has non-financial components. The most important non-financial aspects are — allotment of plots for house construction and farming; land development; provision of low-cost dwelling units; animal husbandry, dairy and pig farming, etc.; generation of wage employment and ensuring minimum wages; collection and processing of minor forest produce; supply of essential commodities through Targeted Public Distribution System; and education for children.

The scheme provides for the creation of Bonded Labour Rehabilitation Fund at the district level, which is monitored by the District Magistrate. The corpus fund of Rs 10.00 lakh is meant to provide immediate financial help to the rescued bonded labourers. The upper limit of immediate financial help is Rs 20,000. The State Governments have to ensure a safe environment for the rescued bonded labourers and impart training to enhance their skills. For all rescued people, including differently abled people, psychosocial and skill development programmes are the key components of the rehabilitation scheme.

Between 2013 and 2016, 1922 bonded labourers were released and they received the total rehabilitation amount worth of Rs 192.20 lakh (Table A 5.2) (Statistical Appendix). The most number of freed bonded labourers between 2013 to 2016 belonged to — Gaya (693), Samastipur (139), Madhubani (137), Sitamarhi (114), and Katihar (111), and they accounted for 62 percent of total freed bonded labourers. Later, 798 bonded labourers were freed and under the new scheme Rs 84.40 lakh was spent on their rehabilitation. Most number of freed bonded labourers were residents of — Nawada (252), Gaya (79), Samastipur (57), Jehanabad (56), Supaul (54), and Darbhanga (50). These six-district together accounted for more than 68 percent of the total rescued bonded labourers between 2016 and 2019.

Bihar Shatabdi Asangatith Karyakhetra Kamgar Awam Shilpkar Samajik Surakhsha Yojana 2011

The State Government initiated Bihar Shatabdi Asangatith Karyakhetra Kamgar Awam Shilpkar Samajik Surakhsha Yojana in 2011 to provide social security to unorganised workers as a large proportion of workers in Bihar are engaged in the unorganised sector. There are 88 occupations which have been identified under the unorganized sector. Along with the unorganised sector workers, the scheme also covers artisan and others. The scheme provides financial support and security at the time of emergency such as death, disability, accident or in case of terminal diseases/illness. The amount of grants is presented in Table 5.9. The dependent spouses of deceased workers receive the grant, against the submission of valid certificates and documents. The District Magistrate is the implementation officer of the scheme.

In 2015-16, the total number of claims in all the categories was 728 and the total disbursed amount was Rs 393.30 lakh. The data suggest that the number of claims has increased from 728 in 2015-16 to 1448 in 2018-19. Consequently, the amount of disbursement increased from Rs 393.30 lakh in 2015-16 to Rs 820.23 lakh in 2018-19. During the last four years, the State Government has provided financial support of Rs 2844.00 lakh against 5085 claims under the scheme (Table 5.10).

Table 5.9 : Sub-scheme wise Grant Provisions under Bihar Shatabdi Asangatith Karyakhetra Kamgar Evam Shilpkar Samajik Surakhsha Yojana

Sub-scheme	Amount (Rs.)
Accidental death	1,00,000
Natural death	30,000
Complete permanent disability	75,000
Permanent partial disability	37,500
Injuries due to accident	5000
Incurable diseases/illness.	7500-30,000

Sources : Labour Resources Department, GoB

Table 5.10 : Grants provided under Bihar Shatabdi Asangatith Karyakhetra Kamgar Evam Shilpkar Samajik Surakhsha Yojana (2015-16 to 2018-19)

Year	No. of accidental deaths	No. of Permanent Disability	Partial Disability	Normal Deaths	Hospitalization	Incurable Diseases	Total no. of Claims	Total Amount (Rs. lakh)
2015-16	249	3	6	462	2	6	728	393.30
2016-17	634	9	35	1093	2	18	1791	985.93
2017-18	440	5	8	636	0	29	1118	644.55
2018-19	548	8	11	855	1	25	1448	820.23
Total	1871	25	60	3046	5	78	5085	2844.00

Sources : Labour Resources Department, GoB

Construction Workers

The two most important acts regarding construction workers are — (i) Building and Other Construction Worker (Regulation of Employment and Conditions of Service) Act, 1996, and (ii) Building and Other Construction Workers Welfare Cess Act, 1996. To implement the Building and Other Construction Worker Act, 1996, the State Government enacted Bihar Building and other Construction Workers (Regulation of Employment and conditions of service) Rule, 2005, which was amended time to time. The Central Government has framed the rules for implementation of the Building and Other Construction Workers Welfare Cess Act, 1996. In the law, provisions have been made for monitoring working condition, health, safety and welfare of the construction workers. To implement the above-mentioned Act and rule, the State Government has enacted Bihar Building and other Construction Workers Welfare Board. At present, 20 different categories of workers has been identified as construction workers.

To avail the benefits of Bihar Building and other Construction Workers Welfare Board, a construction worker (in the age group of 18 to 60 years) need to be a registered member of the Board. All applications are uploaded online through a software developed by the Board, and an

identity card is issued to the registered construction workers. The Board ensures the health and safety of the construction workers at the workplace, promotes their welfare, and also manages the funds for different welfare schemes. These welfare schemes include — death benefits, maternity benefits, financial support for education, cash awards, financial support for the marriage, cycle purchase plan, instrument purchase plan, house repair grant, medical assistance, annual medical assistance, pension, disability pension, financial assistance for the funeral, family pension, and paternity benefits.

To provide the above-mentioned benefits to the eligible registered construction workers, the Bihar Building and other Construction Workers Welfare Board has earmarked a significantly large fund, which is accrued from the construction cess collected from the estimated cost of all type of construction within state. Table 5.11 represents the details of registered construction workers and the number of beneficiaries. During 2014-15 to 2018-19, a total of 1295 thousand construction workers have registered themselves with the Board and around 339.3 thousand workers have received some benefit from various schemes. The allocation of funds has been increasing over the years. In 2014-15 and 2018-19, the total allocation was Rs 163.80 crore and Rs 370.00 crore respectively, registering an increase of 126 percent in just five years.

Table 5.11 : Number of Registered Construction Workers, Beneficiaries and Fund Utilization (2014-15 to 2018-19)

Year	No. of registered construction workers (in 000')	Fund (Rs. crore)	No. of beneficiaries (in '000)	Fund utilized (Rs. crore)
2014-15	309.8	163.8	27.5	41.3
2015-16	409.6	203.7	5.5	8.3
2016-17	57.4	231.1	7.3	10.9
2017-18	191.3	266.0	40.8	61.3
2018-19	326.9	370.0	258.2	80.9
Total	1295.0	1234.6	339.3	202.7

Source : Labour Resources Department, GoB

Child Labour

According to the World Report on Child Labour 2015, globally 168 million children were trapped in child labour. Within India, there have been variations in incidents of child labour across the states.

Under the Child and Adolescent Labour (Prohibition and Regulation) Act 1986, section 3 completely prohibits the engagement of children in all processes and occupations. In 2009, the

State Government launched a ‘State Plan of Action for Child Protection, Rescue and Rehabilitation’, to create a child-friendly and safe environment for the overall wellbeing of children. The State Action Plan was further amended in year 2017. A Child Labour Tracking System software was developed to monitor the rehabilitation process of the rescued child labour. Between 2014 and 2019, 5616 child labourers were rescued and 82 children were enrolled in schools. Additionally, the State Government has also made a provision for financial support of Rs 25,000 for the child labour from the Chief Minister Relief Fund. The scheme has benefitted around 1492 child labourers between 2014 and 2019. Furthermore, the Action Plan also includes the provision of residential training centres to carry forward the educational and economic rehabilitation for the rescued child labourers. Before enrolling the rescued children in mainstream schools, the children have been provided with bridge courses. Along with formal education, the interested children have been provided with vocational education and eventually accommodated in various state-run skill development programmes. Special residential training centres were to be set up in Gaya, Nawada, Nalanda, Patna, Banka, Sitamarhi and Jamui. Currently, the special residential training centres in Patna, Gaya, Jamui, and Banka are functional.

Table A 5.3 (Statistical Appendix) presents district-wise data of rescued child labour and rehabilitation under Chief Minister’s Relief Fund (CMRF) for the years 2016-17, 2017-18 and 2018-19. Around 1054 children were rescued in 2016-17. In the subsequent years, the number of rescued children has declined. However, the rehabilitation rate was highest in 2017-18, when 230 out of 930 rescued children were provided with rehabilitation in the state. The children coming from other states but rescued in Bihar, have been handed over to the authorities of other states as per the norms.

5.3 Minimum Wages Rates

The determination of minimum wage is one of the most important means to ensure the livelihood of the people who are working in the unorganised sector. The effective enforcement of minimum wages is also important to reduce wage inequality and promote a decent living standard for the workers. The Department of Labour Resources periodically revises the minimum wages for six categories of work — Work category I (69 types of informal work) Work category II (*Papad* and *Agarbatti Udhyog*, dry toilet construction), Work category III (drug sale promotion and planning), Work category IV (domestic worker) Work category V (breaking and grinding stone, beedi and brick making, hair cutting, power loom, silk and thread industry, workers in lac and tea industry, etc.), and Work category VI (Agriculture). The minimum wages are revised twice a year, in April and October. A list of the minimum wages for all the six categories during the last five years is presented in Table 5.12.

Table 5.12 : Sector-wise Minimum Wage in Bihar (2015 to 2019)

Category	2015	2016	2017	2018	2019
Worker Category I and V					
Unskilled (per day)	197	237	247	257	277
Semi-Skilled (per day)	206	247	257	268	289
Skilled (per day)	251	301	313	325	352
Highly-Skilled (per day)	306	367	381	396	429
Supervisor/Clerk (per month)	5664	6799	7074	7359	7955
Worker Category II					
Unskilled (per day)	189	227	237	246	266
Semi-Skilled (per day)	197	237	247	257	277
Skilled (per day)	241	290	302	314	339
Highly-Skilled (per day)	295	353	367	382	413
Supervisor/Clerk (per month)	5444	6535	6799	7073	7646
Worker Category III					
Unskilled (per day)	181	217	225	234	254
Semi-Skilled (per day)	188	225	235	244	263
Skilled (per day)	232	278	290	302	325
Highly-Skilled (per day)	282	339	353	368	397
Supervisor/Clerk (per month)	5229	6277	6531	6794	7344
Worker Category IV					
Washing dishes (one hour per day for a month)	589	707	735	765	827
Washing dishes/clothes (one hour per day for a month)	589	707	735	765	827
Washing dishes/clothes/ Mop in 1000 square feet (one hour per day for a month)	589	707	735	765	827
Washing dishes/clothes, Mop in 1000 square feet, looking after children (8 hours per day for a month)	4703	5645	5873	6109	6605
Washing dishes/clothes, Mop in 1000 square feet, taking children to the school and bring them back (8 hours per day for a month).	4703	5645	5873	6109	6605
Worker Category VI					
Unskilled (per day)	197	237	247	257	277
Other work except harvest related work (per day)	189	227	237	246	266
Tractor drivers and pump operators (per month)	6805	8168	8498	8841	9557
Harvest work (per month)	5294	6355	6612	6878	7435

Note : For comparison purpose, the minimum wages revised in the month of October are reported here.

Sources : Labour Resources Department, GoB

5.4 Recruitment by State and Other Organizations

The State Government has taken several steps over the years to give employment opportunities to the eligible working-age population in the departments and different state-run undertakings. At various points in time, the State Government has formed agencies and commissions to create employment opportunities. Some of the most prominent commissions and agencies are — Bihar Public Service Commission (BPSC), Bihar Technical Service Commission (BTSC), BELTRON and Rural Self Employment Training Institute (RSETI).

Bihar Public Services Commission

The Bihar Public Service Commission (BPSC) is a constitutional body under Article 315 of the Constitution of India. The BPSC is one of the biggest commissions to recruit people by conducting competitive examinations to provide human resource to various departments of the State Government. In 2017-18, BPSC had recruited 1528 persons; in 2018-19, the number has become nearly doubled to be 2930 persons.

Table 5.13 : Number of Vacancies Advertised by BPSC (2017-18 and 2018-19)

Year	Particulars	General	SC	ST	EBC	BC	BC (Women)	Total
2017-18	Vacancies	936	309	17	331	219	50	1862
	Recommendation sent	924	160	7	209	207	21	1528
2018-19	Vacancies	1559	579	28	685	369	120	3340
	Recommendation sent	1550	394	27	511	359	68	2930*

Note : * Includes 21 posts recommended against the order of Hon'ble Court

Source : Bihar Public Services Commission (BPSC), GoB

Bihar Technical Service Commission (BTSC)

The Bihar Technical Services Commission (BTSC) was constituted by the State Government in 2014 and became functional from 2017. BTSC recommends candidates to fill the technical posts in various departments and regional offices of Bihar. About 109 technical posts have been identified by BTSC, which makes recommendations for recruitment at regular intervals. As Table 5.14 suggests, during 2018-19 and 2019-20, BTSC had advertised for 22,115 posts.

Table 5.14 : Number of Vacancies Advertised by BTSC for Various Posts (2018-19 and 2019-20)

Year	Post	Seat
2018-19	Junior Engineer	6379
2019-20	Staff Nurse	9130
	Tutors	169
	Medical Officer	6437
Total		22115

Source : Bihar Technical Services Commission, GoB

Table 5.15 presents fund allocation and expenditures of BTSC during 2017-18 and 2018-19. There has been a significant increase in the allocation of fund in 2018-19 (140 percent). On the other hand, expenditure has also increased by 26 percent.

Table 5.15 : Budget Allocation and Expenditure of BTSC (2017-18 and 2018-19)

(Fig. in lakh')

Year	Allotment	Expenditure	Percentage of fund utilization
2017-18	220.0	93.8	42.6
2018-19	528.9	341.2	64.5
Total	748.9	435.0	58.1

Source : Bihar Technical Services Commission, GoB

Bihar State Electronic Development Corporation (BELTRON)

BELTRON provides services in IT consultation, supports E-governance and provides IT skilled manpower. In the era of information technology, the State Government strongly advocates the need to adopt new technology for efficient and effective delivery systems. The objectives of BELTRON are to develop Bihar as an e-developed state and technologically empowered society, provide skilled manpower to various departments for a seamless and reliable citizen-centric service, and to provide information for the public. At present, BELTRON has through third party agency provides man-powers like programmer, stenographer, data entry operator to the various departments offices of the State Government.

Rural Self Employment Training Institute (RSETI)

The Central Government has constituted the National Rural Livelihood Missions (NRLM) through the Ministry of Rural Development. The aim of NRLM is to create a sustainable livelihood for rural BPL families by various interventions, focusing on skill development for employment and promoting micro enterprises. The Mission is expected to facilitate establishment of RSETIs, branding, reimbursement of the training cost, monitoring and ensuring convergence. Initially, to provide skill development training, Rural Development and Self-employment Training Institute (RUDSETI) was established in selected districts. Since RUDSETI was a huge success, the State Government decided to establish such institutes in all districts of the state. This model was replicated to constitute the Rural Self Employment Training Institute (RSETI). It provides a platform to start self-employment opportunities through imparting training and skilling activities. The training and skilling module of RSETIs are well designed for entrepreneurship development and aligned with common norms and notification issued by the Ministry of Skill Development and

Entrepreneurship of the Central Government. The programmes are broadly categorised into two types — for first-generation entrepreneurs and for established entrepreneurs. The first-generation entrepreneurship development programme includes agriculture EDP (Entrepreneurs Development Programmes), Product EDP, Process EDP and General EDP. The established entrepreneur’s category includes skill upgradation and growth programmes.

The duration of different skilling programmes is mentioned in Table 5.16. For Agriculture EDP, the duration of training period is 6 to 10 days. For Product, Process, and general EDP, the duration ranges between 6 and 45 days. Training for skill upgradation and growth programmes takes 7 to 15 days.

Table 5.16 : Type of Skill and Duration of the Training Programmes

Programme Type	Training period (days)
Agriculture EDP	6-10
Product EDP	6-45
Process EDP	6-45
General EDP	6-45
Skill upgradation & growth programme	7-15

Source : Rural Development Department, GoB

Table 5.17 presents the data on number of trainees (both male and female), who have completed the course and received the certificate. In the last five years (2014-15 to 2018-19), 1,38,104 candidates were trained, of which 62,618 (45 percent) were male and 75,457 (54 percent) were female and less than one percent were transgender. It is interesting to see that females were more involved in training programmes as compared to their male counterparts.

Table 5.17 : Number of Trainees by RSETI (2014-15 to 2018-19)

Year	No. Candidates Trained	Trained/Certificate Issued		
		Male	Female	Trans-gender
2014-15	24933	13952	10977	4
2015-16	27528	13056	14470	2
2016-17	30544	13832	16708	4
2017-18	28411	11813	16596	2
2018-19	26688	9965	16706	17
Total	138104	62618	75457	29

Source : Rural Development Department, GoB

Table 5.18 indicates that 4919 programmes were conducted under RSETIs, and 1,38,104 candidates received training between 2014-15 and 2018-19. Of the total trained candidates, 74 percent obtained gainful employment in various economic activities. The financial institutions (as part of various schemes) have financed 26 percent of the trained candidates. The availability of credit has certainly opened several opportunities for the trained people.

Table 5.18 : Number of Trainees Completed Training and Number of Trainees Received Employment (2014-15 to 2018-19)

Year	No. of training Programmes	No. of trainees completed training	No. of trainees received employment
2014-15	882	24933	17402
2015-16	998	27528	19980
2016-17	1073	30544	23290
2017-18	1041	28411	22221
2018-19	925	26688	16059
Total	4919	138104	102682

Source : Rural Development Department, GoB

Dashrath Manjhi Labour and Planning Institute

In 2019-20, the State Government has allocated Rs 2.00 crore to establish Dashrath Manjhi Labour and Planning Institute to perform the role of a thinktank for the State Government on the issues of labour and planning. The Institute will engage in policy-oriented research on labour resources in the state and prepare an action plan for the upliftment of the working population. The Institute will arrange training programmes for capacity building of government officials and will provide relevant information on enforcement of labour laws, and desired changes and amendments in labour laws to guide the State Government. Furthermore, based on the trend in the progress of technology in various fields of work, the Institute will recommend a revision of the curricula of Industrial Training Institutes (ITIs) to enable the youth to take up market demanded jobs. The Institute will also review the welfare programmes run by the State Government at regular intervals and will recommend necessary changes.

Technical Education in Bihar

The number of Technical Training Institutes run by the State Government is 38, across the districts of Bihar. The State Government has also started 11 Women Industrial Training Institutes (WITIs). The number of Polytechnic Colleges is 44, of which 32 colleges have received government affiliation. In 2018-19, the total approved intake in Government Polytechnic Diploma courses was 10,035 and the same in Private Polytechnic Diploma courses was 17,095.

Employees' State Insurance (ESI)

The Employees' State Insurance Act, 1948 was the first major legislation by the Parliament on social security of the workers. The Act was initially implemented for factory workers, but later expanded to employees of all establishments with 10 or more workers. The Employee's State Insurance Scheme is a self-financed health insurance scheme that is managed by Employees' State Insurance Corporation (ESIC). The ESIC is an autonomous body under the Ministry of Labour and Employment, Government of India. The total number of registered workers under the ESIS was 2.02 lakh in 2017-18, and the number has increased to 2.83 lakh in 2018-19, an increase of 40 percent. In 2017-18, 65,821 workers had received treatment under the scheme, while 56,919 workers had received treatment in 2018-19.

Table 5.19 : Number of Insured and Treated People under Employees' State Insurance (2017-18 and 2018-19)

Year	No. of Insured people	No. of Treated people
2017-18	201950	65821
2018-19	283220	56919

Sources : Labour Resources Department, GoB

Skill Development

The Bihar Skill Development Mission (BSDM) was constituted in 2010. The primary objective of the Mission is to facilitate training programmes for the youth and provide them with adequate employment opportunities. Two key schemes run by BSDM are :

Kushal Yuva Programme (KYP) : The BSDM has launched a unique skill training programme, called Kushal Yuva Programme, targeting people in the age group 15 to 28 years with a minimum educational level of Standard 10. Under the KYP, the Mission organises training programmes to impart soft skills, comprising life skills, communication skills (Hindi and English) and basic computer literacy. The official data suggest that 7,37,473 students have registered themselves in 1561 operational centres till date across all districts of Bihar. Furthermore, 3,02,974 students have completed their training programmes.

Recruit-Train-Deploy (RTD) Scheme : The RTD scheme is an innovative initiative to establish an effective and efficient skill ecosystem in Bihar. In this direction, BSDM has constituted 'Dynamic and Demand-Based System Planning'. The RTD scheme invites representatives from different industries and corporate bodies to assess the market demand of different domain skills. The RTD scheme is specifically designed to facilitate industries to train candidates according to their requirements. Evidently, the RTD model is beneficial for both job seekers and industries.

Table 5.20 presents the financial details of different training programmes initiated under various schemes. The fund utilisation across all schemes has been remarkably high, that affirms the State Government's commitment in imparting skill training and improve employability of a large section of the youth in Bihar.

Table 5.20 : Financial Allocation and Expenditure under Different Schemes for Training (2018-19)

(Rs. lakh)

Scheme	Budget	Expenditure	Utilisation Percentage
Training & Re-Training	26.10	25.87	99.1
Introduction of New Trades in existing ITIs	100.00	30.14	30.1
Modernization of Machines and Equipments of ITIs	4000.00	577.81	14.4
Introduction of New Trades in existing Women's ITIs	50.00	19.98	40.0
Establishment of New ITIs	4000.00	3449.12	86.2
Management Information System	493.90	132.68	26.9
Bihar Skill Development Mission (TSP)	379.19	379.19	100.0
Bihar Skill Development Mission (SCSP)	10136.20	10136.20	100.0
Bihar Skill Development Mission	21459.88	21459.88	100.0
Establishment of New Women ITIs	1000.00	617.59	61.8
Skill Development Mission	2384.70	283.50	11.9
Land Acquisition for ITIs	2000.00	307.20	15.4
Total (A)	46029.97	37419.14	81.3
Skill Development Mission for Building Construction	480.00	312.72	65.2
Skill Development Mission for Building Construction (SCSP)	90.00	0.00	0.0
Skill Development Mission for Building Construction (TSP)	30.00	0.00	0.0
Construction/Renovation/Strengthening of ITIs Buildings	13491.15	11915.07	88.3
Construction/Renovation/Strengthening of ITIs Buildings (TSP)	250.00	50.00	20.0
Construction/Renovation/Strengthening of ITIs Buildings	1497.70	1368.22	91.4
Total (B)	15838.85	13646.01	86.1
Skill Development Mission for Building Construction (Central share)	1125.00	612.89	54.5
Skill Development Mission (Central share)	2875.00	45.07	1.6
Total (C)	4000.00	657.96	16.4
G Total (A+B+C)	65868.80	51723.11	78.5

Sources : Labour Resources Department, GoB

Table 5.21 presents the departments-wise budget for skilling programmes. The budget allocation has significantly increased for Department of Health, Department of SC/ST welfare, Department of Social welfare and Department of Minority welfare in 2018-19 as compared to 2017-18.

Table 5.21 : Department-wise Budget for Skilling Programmes (2016-17 to 2018-19)

(Rs. lakh)

Name of the Department	Budget amount		
	2016-17	2017-18	2018-19
BSDM, Labour Resources Department	27443.80	30154.51	80971.05
Department of Health	NA	100.00	460.00
Department of Home (Prisons and Correctional Services)	NA	NA	25.00
Department of Education	NA	NA	2931.00
Department of Animal and Fisheries Resources	NA	585.00	118.00
Backward and Extremely backward class welfare Department	NA	NA	600.00
Department of Industries	2067.80	2834.50	2071.00
Department of SC/ST welfare	NA	1500.00	1700.00
Department of Agriculture	913.50	1200.00	1249.00
Department of Information Technology	2500.00	2000.00	300.00
Department of Urban Development and Housing Department	15364.00	12247.00	15088.00
Department of Tourism	NA	100.00	100.00
Department of Rural Development	713.10	21661.99	30490.00
Department of Social Welfare	NA	1000.00	1307.00
Department of Science and Technology	800.00	1000.00	855.00
Department of Minority Welfare	200.00	700.00	800.00
PMKVY (CSSM Component)	NA	NA	3682.00

Note : PMKVY = Pradhan Mantri Kaushal Vikas Yojana

CSSM = Centrally Sponsored State Managed

Sources : Labour Resources Department, GoB

5.5 Support for Migrant Workers

Bihar Rajya Samundrapar Niyojan Bureau

In search of employment, a large number of workers from Bihar migrate to foreign countries. During the stay at their destinations, migrant workers experience different forms of exploitation. To address the concerns of aspirant migrants and provide them with reliable information, the State Government has formed Bihar Rajya Samundrapar Niyojan Bureau in 2010 under the Department of Labour Resource. The objective of the Bureau is to organise seminars and workshops to help aspiring migrants. Moreover, the Bureau also provides a week long training programme on migration rules, common law, ethics and etiquette of the destination country. Along with that, the Bureau also advises about safety measures and tries to establish a connection between the migrants and the Indian Embassy in the destination country to resolve problems of the migrants. In addition,

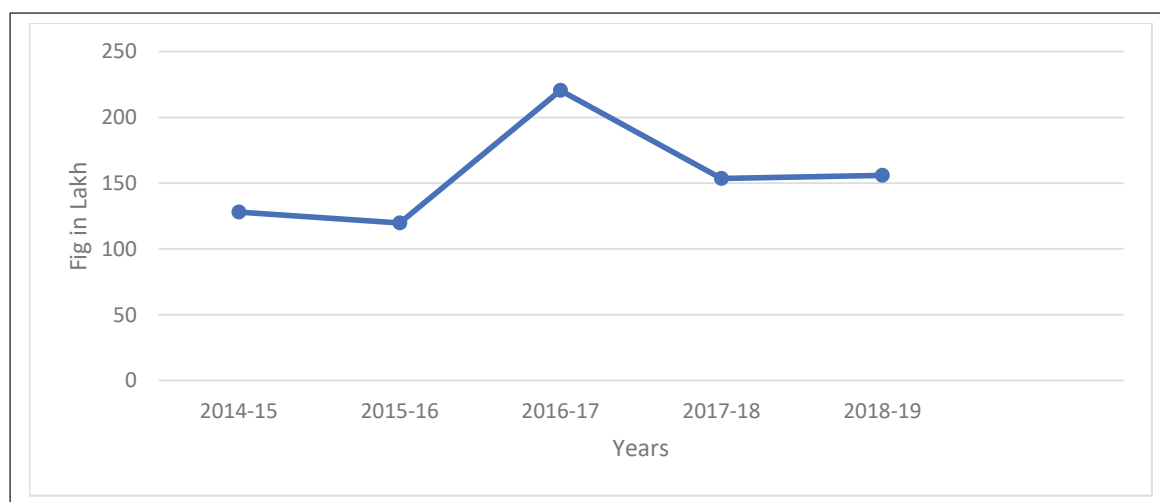
the Bureau helps the aspiring migrants in applying for passport, visa procedure and emigration clearance.

The Central government has also started online portals (24X7) to help migrant workers. To tackle unfortunate circumstances, the following online portals might be used to seek help — (i) MADAD Portal-<http://www.madad.gov.in>, (ii) eMigrants-<http://emigrate.gov.in>, (iii) Overseas Workers Resource Centre (OWRC) and (iv) Indian Labour Resource Centre.

Bihar State Migrant Labour Accidental Grant Scheme, 2008

The Bihar State Migrant Labour Accidental Grant Scheme, 2008 was implemented in all districts of Bihar. Later, this scheme was modified in 2016. In the amended scheme of 2016, along with all the death cases, permanent complete disability and permanent partial disability were also incorporated to enlarge the coverage of the scheme. The grant amount is directly transferred to the bank account of beneficiary. The quantum of compensation is — Rs. 1.00 lakh for death, Rs. 75.00 thousand for permanent absolute disability, and Rs. 37.50 thousand for permanent complete partial disability.

Chart 5.3 : Total Amount Allotted to Dependents of Deceased Migrant Workers during 2014-2019



Source : Labour Resources Department, GoB

In 2016-17, the State Government had spent Rs. 22.03 lakh to provide compensation to 221 beneficiary. Most of the deceased migrant workers were from Begusarai (26), followed by Saran (20) and Samastipur (19). In 2017-18 and 2018-19, the total number of deceased, number of partial permanent disability and number of permanent disabilities declined significantly. Consequently, the total amount disbursed by the State Government has come down commensurately, as presented in Table A 5.4 (Statistical Appendix).

Remittances

The remittances are a crucial aspect of migration. The families of the migrants are heavily dependent on the size of the fund remitted to them. The Reserve Bank of India conducted a survey called ‘India’s Inward Remittances Survey 2016-17’ to report on the status of migration and remittances across the states of India. Table 5.22 shows state-wise share of the inward flow of

Table 5.22 : State-wise Share in Inward Remittances (2016-17)

Rank	Destination State	Share in total remittances (percent)	Rank	Destination State	Share in total remittances (percent)
1	Kerala	19.0	13	Goa	0.8
2	Maharashtra	16.70	14	Haryana	0.8
3	Karnataka	15.0	15	Madhya Pradesh	0.4
4	Tamil Nadu	8.0	16	Odisha	0.4
5	Delhi	5.9	17	Jharkhand	0.3
6	Andhra Pradesh	4.0	18	Uttarakhand	0.2
7	Uttar Pradesh	3.1	19	Puducherry	0.2
8	West Bengal	2.7	20	Chandigarh	0.2
9	Gujarat	2.1	21	Jammu and Kashmir	0.2
10	Punjab	1.7	25	Others	15.8
11	Bihar	1.3		Total	100.0
12	Rajasthan	1.2			

Note : Others includes those remittances for which banks could not identify the specific destination.

Source : India’s Inward Remittances Survey 2016-17, RBI

remittances from other countries. As is observed from the table, Kerala received 19.0 percent of the total remittances, followed by Maharashtra (16.7 percent) and Karnataka (15 percent). Among all states, Bihar stood at the 11th rank, with 1.3 percent of the total remittances. According to the findings of this report, almost 59.2 percent of total remittances was used primarily to maintain consumption at the origin households, while 20.0 percent remittances were used for bank deposit, followed by 8.3 percent for investment purposes, especially to purchase immovable and financial assets. It is clear that when more than half of the remittances is used for household consumption, the standard of living of the households at the origin improved due to remittances.

APPENDIX

Table A 5.1 : District-wise Passport Issued in Bihar (2016-17 to 2018-19)

District	2016-17		2017-18		2018-19	
	Received	Issued	Received	Issued	Received	Issued
Patna	29925	28956	31780	32513	34209	34911
Nalanda	3988	3983	4640	4870	5053	4620
Bhojpur	6168	6062	6761	7196	6456	5880
Buxar	7710	7143	7405	8510	6861	6071
Rohtas	6648	6808	7355	7778	7608	6845
Kaimur	1951	1950	2016	2214	2204	2040
Gaya	7342	7293	7804	7955	9703	7949
Jehanabad	1394	1425	1630	1649	1712	1648
Arwal	1062	980	1112	1249	1268	1231
Nawada	4199	4389	4752	5156	5517	4886
Aurangabad	16472	17610	27854	26257	25483	25462
Saran	15087	14859	15143	16405	15729	13766
Siwan	42142	41709	45819	49263	45093	41668
Gopalganj	37355	38680	37244	39924	35893	34239
W. Champaran	NA	NA	NA	NA	348348	317338
E. Champaran	13587	13738	14148	14813	14908	12753
Muzaffarpur	14091	13833	14878	15301	16545	13642
Sitamarhi	7924	7643	7908	8763	8462	7306
Sheohar	792	671	761	925	897	860
Vaishali	5622	5497	6356	6855	6782	6312
Darbhanga	12327	12923	11982	12889	12643	10112
Madhubani	12184	12387	11018	12024	11944	9607
Samastipur	5090	5178	5582	5779	6118	5067
Begusarai	4854	4503	5027	5293	5605	4797
Munger	1956	1971	2374	2452	2667	2215
Sheikhpura	883	911	950	1021	1058	961
Lakhisarai	1037	996	1117	1205	1286	1126
Jamui	2289	2291	2724	2849	2989	2864
Khagaria	1510	1498	1601	1840	1609	1350
Bhagalpur	4834	4989	6967	6736	6192	4989
Banka	1091	1087	1364	1424	1456	1147
Saharsa	2053	1967	2241	2457	2175	1909
Supaul	2896	3026	2658	3205	2981	2755
Madhepura	1086	1152	1041	1209	1209	1073
Purnea	5406	5438	6380	6511	7100	6973
Kishanganj	4665	4594	4937	5280	4887	4749
Araria	4690	4678	4570	4581	4762	4776
Katihar	3985	3968	4743	4757	4951	4603
Bihar	296295	296786	322642	339108	367908	337401

Note : Included backlog of applications

Sources : Ministry of External Affairs, Regional Passport Office, Patna

Table A 5.2 : Number of Released and Rehabilitated Bonded Labour by Old and New Scheme (2013 to 2019)

District	Old Scheme (2013 to May 16, 2016)			New Scheme (May 2016 onward)		
	No. of Bonded Labour Released (within and outside state)	No of Bonded Labour received Assistance	Amount Paid as Immediate Assistance (Rs. 'crore)	No. of Bonded Labour Released (within and outside state)	No of Bonded Labour received Assistance	Amount Paid as Immediate Assistance (Rs. '000)
Patna	20	20	20.0	15	10	200.0
Nalanda	66	66	66.0	9	6	120.0
Bhojpur	13	13	13.0			
Buxar	1	1	10.0			
Rohtas	30	30	30.0			
Kaimur	7	7	70.0	2	1	20.0
Gaya	693	693	6930.0	79	40	800.0
Jehanabad	64	64	640.0	56	27	540.0
Arwal	3	3	30.0			
Nawada	64	64	64.0	252	89	1780.0
Aurangabad	3	3	30.0			
Saran	2	2	20.0	2		
Siwan	1	1	10.0	29		
Gopalganj				1		
W. Champaran	4	4	40.0	1		
E. Champaran	59	59	590.0	33	31	620.0
Muzaffarpur	78	78	780.0	19	7	140.0
Sitamarhi	114	114	1140.0	21	14	280.0
Sheohar	2	2	20.0	1		
Vaishali	43	43	430.0	8	5	100.0
Darbhangha	59	59	590.0	50	18	360.0
Madhubani	137	137	1370.0	22	16	320.0
Samastipur	139	139	1390.0	57	53	1060.0
Begusarai	22	22	220.0	4	4	80.0
Munger	7	7	70.0			
Sheikhpura	4	4	40.0			
Lakhisarai						
Jamui						
Khagaria	4	4	40.0	1	1	20.0
Bhagalpur	8	8	80.0	11	10	200.0
Banka	14	14	140.0	19	19	380.0
Saharsa	1	1	10.0			
Supaul	7	7	70.0	54	48	960.0
Madhepura						
Purnia	28	28	280.0	2	1	20.0
Kishanganj	91	91	910.0	1		
Araria	23	23	230.0	20		
Katihar	111	111	1110.0	29	22	440.0
Bihar	1922	1922	19220.0	798	422	8440.0

Sources : Labour Resources Department, GoB

Table A 5.3 : Rescued and Rehabilitated Child Labour under Chief Minister's Relief Fund (2016-17 to 2018-19)

District	2016-17		2017-18		2018-19	
	Child Labour Rescued	Chief Minister's Relief Fund transferred to CL/AC	Child Labour Rescued	Chief Minister's Relief Fund transferred to CL/AC	Child Labour Rescued	Chief Minister's Relief Fund transferred to CL/AC
Patna	294	6	35	2	55	3
Nalanda	41	2	74	9	39	0
Bhojpur	3	3	23	11	27	18
Buxar	2	0	8	6	5	0
Rohtas	0	0	16	4	17	2
Kaimur	0	0	11	1	12	0
Gaya	141	20	115	18	132	0
Jehanabad	34	13	25	2	23	0
Arwal	1	0	9	0	4	0
Nawada	37	20	55	11	51	0
Aurangabad	23	6	30	1	25	0
Saran	32	13	34	12	18	0
Siwan	9	2	31	13	6	0
Gopalganj	5	3	14	2	13	0
W. Champaran	34	11	16	9	48	9
E. Champaran	34	12	36	5	97	0
Muzaffarpur	7	2	10	0	48	0
Sitamarhi	12	5	26	10	14	2
Sheohar	1	1	5	0	8	
Vaishali	41	21	52	9	31	1
Darbhanga	41	5	8	1	15	0
Madhubani	11	7	30	19	20	0
Samastipur	53	29	27	14	73	3
Begusarai	6	0	11	0	42	0
Munger	6	0	14	5	6	0
Sheikhpura	1	0	11	5	10	0
Lakhisarai	1	0	3	0	6	0
Jamui	0	0	23	9	16	3
Khagaria	7	6	26	7	9	0
Bhagalpur	2	1	16	9	21	0
Banka	5	4	15	2	33	0
Saharsa	21	15	16	1	19	0
Supaul	2	0	8	3	6	0
Madhepura	8	5	10	4	10	0
Purnia	77	13	31	8	23	3
Kishanganj	40	6	18	0	5	0
Araria	11	7	18	8	24	5
Katihar	11	7	20	10	16	5
Bihar	1054	245	930	230	1027	54

Sources : Labour Resources Department, GoB

Table A 5.4 : District-wise Deaths of Migrant Worker and Fund Allotment to the Family of Deceased (2016-17 to 2018-19)

District	2016-17		2017-18		2018-19	
	No. deceased persons	Allotted amount (000')	No. deceased persons	Allotted amount (000')	No. deceased persons	Allotted amount (000')
Patna	4	400	2	200	4	400
Nalanda	2	200	0	0	—	—
Bhojpur	16	1600	9	900	11	1100
Buxar	10	1000	1	100	3	300
Rohtas	9*	837.5	8*	737.5	2	200
Kaimur	4	400	1	100	1	100
Gaya	4	400	4	400	1	100
Jehanabad	—	—	1	100		
Arwal	—	—	5	500	3	300
Nawada	3	300	6	600	1	100
Aurangabad	5	500	6	600	7	700
Saran	20	2000	3	300	13	1300
Siwan	13	1300	17	1700	4	400
Gopalganj	8	800	4*	337.5	10	1000
W. Champaran	—	—	1	100	10	1000
E. Champaran	5	500	10	1000	2	200
Muzaffarpur	13	1300	11	1100		
Sitamarhi	2	200	1	100	1	100
Sheohar	1	100	1	100	1	100
Vaishali	14	1400	6	600	7	700
Darbhanga	—	—	5	500	2	200
Madhubani	2	200	—	—	1	100
Samastipur	19	1900	12	1200	15	1500
Begusarai	26	2600	--	--	9	900
Munger	2	200	2	200	—	—
Sheikhpura	3	300	1	100	8	800
Lakhisarai	—	—	1	100	3	300
Jamui	6	600	2	200	5	500
Khagaria	3	300	2	200	9	900
Bhagalpur	4	400	4@	375	6	600
Banka	6	600	—	—	1	100
Saharsa	5	500	10	1000	8	800
Supaul	3	300	2	200		
Madhepura	2	200	—	—	2	200
Purnea	5	500	11	1100	1	100
Kishanganj	—	—	—	—	1	100
Araria	2	200	2	200	3	300
Katihar	—	—	4	400	1	100
Bihar	221	22037.5	155	15350	156	15600

Note : * One partial permanent disability, @One permanent disability

Sources : Labour Resources Department, GoB

CHAPTER - VI

INFRASTRUCTURE

You and I come by road or rail, but economists travel on infrastructure. — Margaret Thatcher

Abstract

The infrastructure is one of the main pillars of economic development. The transport sector has registered double-digit growth in the recent period and has increased its share in economy. It is mainly the outcome of the investment made by the State Government. The major achievement in the area of road safety is that road accidents per lakh population has been the lowest in Bihar among major Indian states. In terms of road density (per 1000 sq.km.), Bihar ranks fourth among major states of India. The State Government has been expanding rural roads in a massive manner and has doubled its length in the last five years to strengthen the rural economy. The State Transport Corporation has earned the highest growth in revenue collection and its has increased by more than seven times during the last five years. The Railways and Air Transport have also been playing an important role in the development of the state economy. The Building Construction Department has endeavoured to create adequate and quality infrastructure for delivering good governance through building administrative buildings, as well as social infrastructure. Telecommunication has been useful in providing e-governance programmes in the state, while the Postal Department has been providing substantial banking services apart from basic postal services.

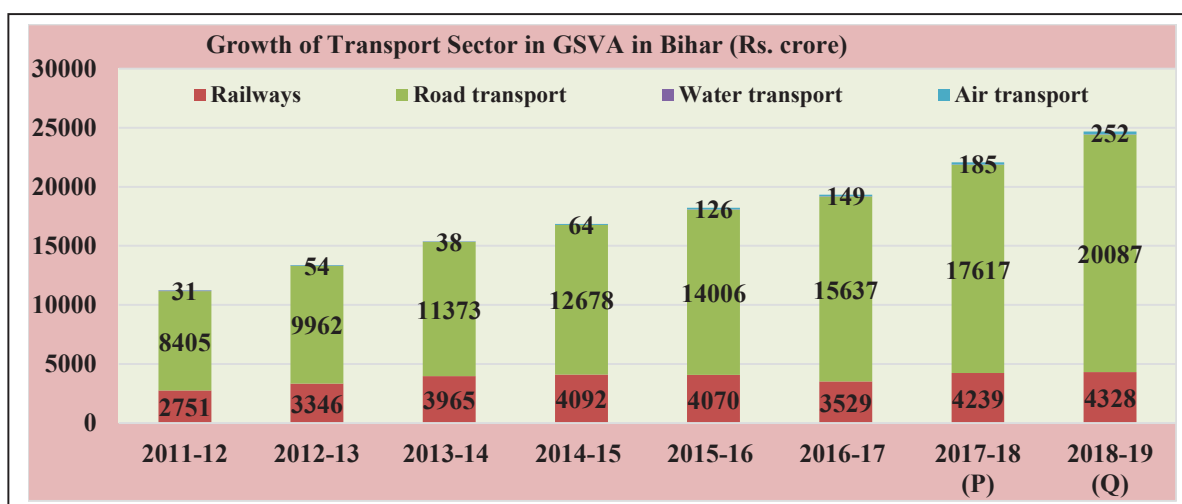
The aim of Sustainable Development Goal-9 (SDG 9) is to develop quality and resilient infrastructure at the regional and transborder levels. The available and accessible infrastructure is an important driver for economic development. Infrastructure complements economic growth and vice versa. For instance, the development of transport infrastructure expands the scope and size of the market and also improves productivity significantly; on the other hand, economic growth enables the state to create more infrastructure. Apart from ensuring better economic growth prospect, integration of local markets with the global market, technological innovation, and the progress in infrastructure also help in reducing poverty. Advancement in infrastructure enables better management of logistics by combining purchasing, production and marketing function. The provision of infrastructure services is the shared responsibility of the Central and State Governments. In the present global economic order, private capital also plays a pivotal role in

infrastructure development. In Bihar, the State Government has given the highest priority to create infrastructure across the state. The physical infrastructure in Bihar has been strengthened considerably during the last decade. This chapter addresses the major components of infrastructure in the state of Bihar, such as road network, road transportation, railways, civil aviation, building construction, telecommunication and postal services. Other equally important components of infrastructure like energy, infrastructure for urban areas, and infrastructure for irrigation are dealt in separate chapters of this report.

6.1 Transport Sector and Economic Growth

The infrastructure development contributes directly to the economic growth in the services sector. Through multiplier effects, it also indirectly impacts employment generation, connectivity of remote areas, accessibility of market, etc. The overall transport sector has been growing at a rate of 11.0 percent in Bihar in the recent past, and its contribution to GSDP at constant (2011-12) prices., more than double from Rs. 11,236 crore in 2011-12 to Rs. 24,692 crore in 2018-19. The share of transport sector in the Gross State Value Added (GSVA) prices also increased by 2.0 percentage points, from 4.6 percent in 2011-12 to 6.6 percent in 2018-19 (Chart 6.1). The contribution of road transport has grown annually at 12.6 percent, whereas the contribution from airways has grown at an even higher annual rate of 35.9 percent during 2011-12 to 2017-18. However, the growth rate of railway transport was lower at 5.1 percent during this period. Thus, the transport sector is a leading sector in Bihar and has evolved as one of the growth drivers of the economy. This trend indicates the increasing economic capacity of the people of the state who are now able to use more of the modern transport services. These outcomes are the consequences of continuous and substantial investment in the infrastructure sector. Such investment is prioritized for transport sectors, especially the road sector, because of its wide utilisation by the people.

Chart 6.1 : Trends of Different Transport Sectors in GSVA in Bihar



6.2 Public Investment in Road Transport

Building of road and its maintenance generate sizeable employment and promote other economic activities. In this scenario, expansion of road network in the state has always been on a high priority for the State Government. In the recent years, the State Government has invested considerably on construction of roads and bridges, as well as their maintenance for smooth transportation of goods and passengers. Indeed, the State Government has taken a resolution to create a quality road network for the people to reach the state capital of Patna from any remote area of the state within five hours. Consequently, the allocations for roads and bridges have been showing an increase from Rs. 5988 crore (2012-13) to Rs. 18,677 crore (2019-20).

Table 6.1 : Public Investment in Roads and Bridges in Bihar (2012-13 to 2019-20)

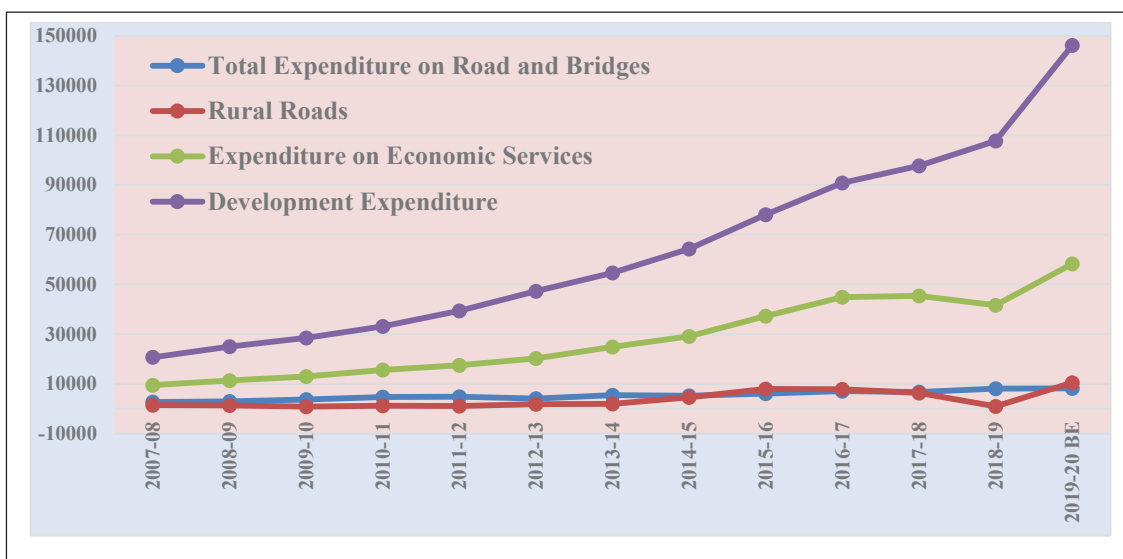
(Rs. crore)									
Expenditure Head	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 BE	CAGR
Public Investment in Road and Bridges (i+ii)	5988	7392	9816	14125	14993	13158	9015	18677	12.5
(i) Expenditure on Road and Bridges	4114	5458	5168	6112	7101	6770	8055	8201	9.6
(ii) Expenditure on Rural Road	1874	1934	4648	8013	7892	6388	960	10476	12.0
Revenue Expenditure on Road and Bridges	823	1375	991	1709	1776	1398	2792	2665	16.5
Capital Expenditure on Road and Bridges	3291	4083	4177	4403	5326	5373	5264	5536	7.2
Expenditure on Economic Services	20246	24871	29173	37305	44943	45360	41603	58245	14.6
Development Expenditure	47282	54718	64293	78077	90800	97771	107737	146134	16.3
Total Budget	69207	80405	94698	112328	126302	136427	154655	200501	15.3
GSDP	282368	317101	342951	371602	422316	484740	515634	572827	10.7
Percentage of Public Investment in Road and Bridges									
Economic Services	29.6	29.7	33.6	37.9	33.4	29.0	21.7	32.1	—
Development Expenditure	12.7	13.5	15.3	18.1	16.5	13.5	8.4	12.8	—
Total Budget	8.7	9.2	10.4	12.6	11.9	9.6	5.8	9.3	—
GSDP	2.1	2.3	2.9	3.8	3.6	2.7	1.7	3.3	—

Source : State Budget Documents, Government of Bihar

The annual growth rate of public investment in the roads and bridges sectors was 12.5 percent. The expenditure on maintenance was growing faster (16.5 percent) in the state, significantly higher than the growth in expenditure on construction of new roads and bridges (7.2 percent). This will

ensure quality of the road network in the state. Given that 88.7 percent of the total population resides in rural areas of Bihar, the availability of rural roads is very important. In this direction, the State Government has taken a resolution to build paved road and drainage system to connect every house. On average, the State Government had spent 9.3 percent of its total budget for construction of road and bridges, including rural roads. In 2019-20, the State Government allotted Rs. 18677.26 crore for the road transport that constituted 32.1 percent of the expenditure on economic services, 12.8 percent of the development expenditure and 3.3 percent of the GSDP of the state.

Chart 6.2 : Trend of Developmental Expenditure in Bihar (Rs. crore)



6.3. Road Safety

Road Safety is one of the defining issues of the last decade. Bihar has made progress and now is on its way to have one of the best road safety records in India. India alone accounts for about ten percent share of the global road crashes. The road crash fatalities in India has been increasing at a rate of 6 percent annually over the past ten years. Many lives have been saved through widespread changes in driver behavior, better engineering and enhanced enforcement.

During 2018, a total of 4.67 lakh road accidents was reported in India. The highest number of accidents was registered in Tamil Nadu (63,920), followed by Madhya Pradesh (51,397) and Uttar Pradesh (42,568). These three states together accounted for 34 percent of total accidents in India. Bihar is at the 15th position in terms of road accidents in India, reporting 9600 road accidents during 2018 (Table 6.2). It is worth noting that the number of road accidents per lakh population is the lowest in Bihar (9.0) among all major Indian states and its rank is 26. The number of road accidents per lakh of population was the highest in Kerala (111) and, for the entire country, the figure stood at 36. Among the million population plus with cities in India, Patna ranked 32 out of

50 in terms of road accidents in 2018. There were 966 road accidents in Patna, which was about 10 percent of the total road accidents in Bihar. The road accidents are the result of various factors, such as human error, road environment and vehicular condition. The traffic rule violation, driving without licence, non-use of safety devices, higher traffic congestion, speed of vehicles, overloading, weather conditions, etc. are the major causes of road accidents. To improve road safety across the state, various initiatives have been undertaken to enhance Road Safety covering a wide spectrum of areas — Legislation, Infrastructure, Technology, Enforcement, Emergency Response and Education.

Table 6.2 : Road Accident in Major Indian States (2015 to 2018)

States	Number of Road Accidents				Number of Accidents Per Lakh Population			
	2015	2016	2017	2018	2015	2016	2017	2018
Andhra Pradesh	24258	24888	25727	24475	27.7	28.2	28.9	27.3
Bihar	9555	8222	8855	9600	9.3	7.9	8.4	9.0
Chhattisgarh	14446	13580	13563	13864	56.5	52.5	51.8	52.3
Gujarat	23183	21859	19081	18769	37.3	34.8	30.0	29.2
Haryana	11174	11234	11258	11238	41.3	40.9	40.4	39.8
Jharkhand	5162	4932	5198	5394	15.5	14.7	15.3	15.6
Karnataka	44011	44403	42542	41707	71.2	71.2	67.6	65.7
Kerala	39014	39420	38470	40181	110.0	110.5	107.2	111.4
Madhya Pradesh	54947	53972	53399	51397	71.6	69.3	67.6	64.2
Maharashtra	63805	39878	35853	35717	53.8	33.2	29.5	29.1
Odisha	10542	10532	10855	11262	25.0	24.8	25.4	26.1
Punjab	6702	6952	6273	6428	23.2	23.9	21.4	21.7
Rajasthan	24072	23066	22112	21743	33.4	31.6	29.9	29.0
Tamil Nadu	69059	71431	65562	63920	100.0	102.9	94.0	91.3
Uttarakhand	1523	1591	1603	1468	14.5	15.0	14.9	13.5
Uttar Pradesh	32385	35612	38783	42568	15.1	16.3	17.5	18.9
West Bengal	13208	13580	11631	12705	14.2	14.5	12.3	13.4
All-India	501423	480652	464910	467044	38.3	37.9	36.2	36.0

Source : Ministry of Road Transport and Highways, Government of India

Road safety is emerging as a major social concern in the country. While new roads are being built, faster and faster automobiles are being invented in high numbers making road safety a crucial question. A Road Safety Policy, 2015 has been adopted by the State Government for minimizing road accidents and making road transport more safe. Subsequently, the Bihar Road Safety Action Plan and Road Safety Fund have been created. The Road Safety Council Rules-2018 has been framed and adopted. The State Road Safety Council and District Road Safety Committee have been made more effective through strict monitoring systems. The road safety has been

incorporated in the curriculum of Class VI to Class VII and awareness programmes have been organized for the common people of the state on a regular basis. A School Vehicle Management Policy is being prepared to ensure safe transportation of students. Speed Limiting Device and Reflective Tapes has been made mandatory for all vehicles to reduce accident. Black Spot Policy along with Good Samaritan has been created. There are 44 advance life support ambulances (Toll free no- 1099) and 749 basic life support ambulances (Toll free no- 102) for all districts of Bihar. These ambulance services are provided by the State Government free of cost.

Every year, the first week of February is observed as the Road Safety Week. To mark the occasion, various awareness programmes and activities such as exhibition, visual shows, slide shows and displaying banners are organised. On this occasion, bus drivers/conductors are made aware of accidents and precautions to be taken to avoid repetition of mistakes. Posters, appeals, instructions, etc are issued by citing major/fatal accidents and their causes. In addition, the Department has also started providing free-of-cost HMV License training to 2000 applicants at IDTR Aurangabad to ensure safe during standards.

6.4. Road Network

The road network plays a pivotal role in the development of the economy of any region. It opens up ample opportunity by connecting rural areas to the nearest urban or semi-urban centres, provides access to the market, and thus helps to promote economic activity. India has about 58.98 lakh kms of road network, which is the second largest in the world. This comprises National Highways, Expressways, State Highways, Major District Roads, Other District Roads and Village Roads. Presently, Bihar has a road network of 2,09,549 kms. which includes 4839 kms of National Highways (NH) and 4006 kms of State Highways (SH). This road network transports major share of goods, and a large share of passenger traffic also uses the road network to reach their destination. The road transportation has gradually increased over the years, leading to the improvement in connectivity between cities, towns and villages in Bihar.

The total road length of major states in India between 2003 to 2017 is presented in Table 6.3. The figures are five-year averages for the mentioned period. Table 6.3 also presents the data on road density in terms of road length (in km) per lakh population and per 1000 sq.kms. of area. During the period 2008 to 2017, the maximum expansion of road network was in Maharashtra (3,52,603 kms), followed by Madhya Pradesh (1,77,851 kms) and Uttar Pradesh (1,68,127 kms). Bihar was the sixth highest state in terms of building additional road length (1,30,799 kms) during the same period.

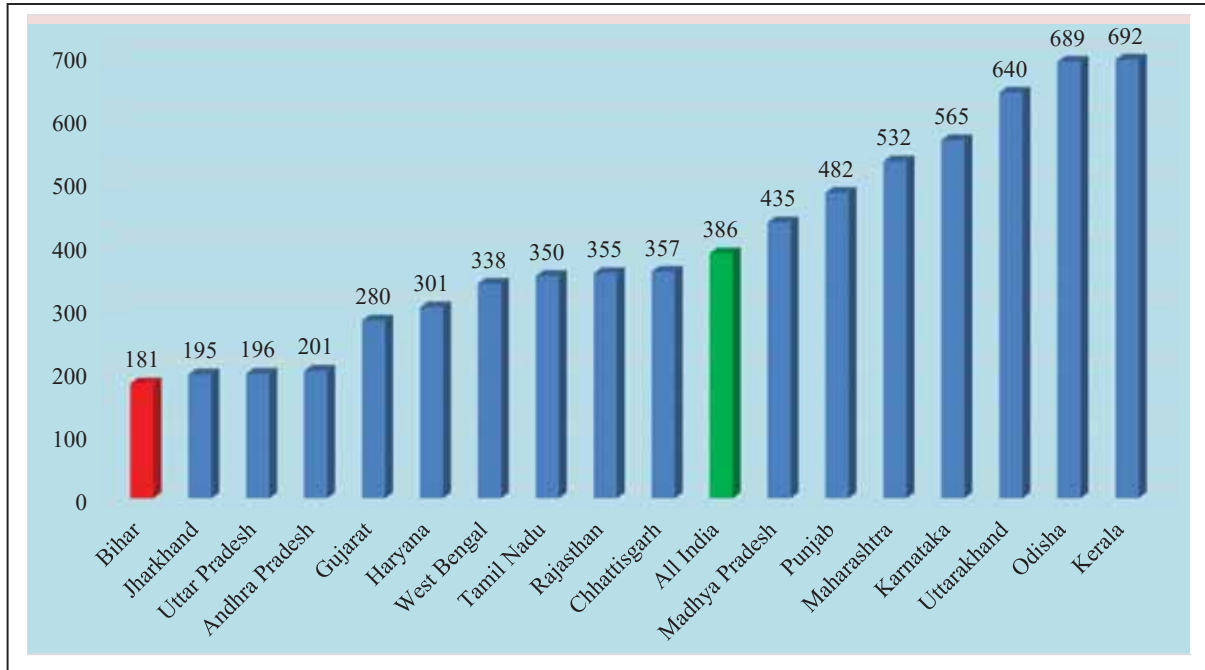
Table 6.3 : Road Network in Major States of India (2003-07, 2008-12 and 2013-17)

State	Road Length (Kms.)			Density of					
				Length of existing roads km/lakh population			Length of existing roads in km/ 1000 sq km		
	2003-07	2008-12	2013-17	2003	2010	2017	2003	2010	2017
Andhra Pradesh	282682	261484	193923	259	282	201	73	86	64
Bihar	102559	128337	205808	91	126	181	84	136	223
Chhattisgarh	73328	84670	95001	335	365	357	54	68	72
Gujarat	144048	155020	177412	272	262	280	73	79	92
Haryana	28859	37480	52263	130	150	301	64	84	184
Jharkhand	15468	22157	51537	41	69	195	14	28	88
Karnataka	215670	279080	329399	367	465	565	104	146	188
Kerala	167397	204594	202943	434	604	692	359	517	619
Madhya Pradesh	164854	188021	286067	263	266	435	53	62	111
Maharashtra	241716	367321	608769	272	367	532	88	132	203
Odisha	214505	238321	287254	564	564	689	137	150	195
Punjab	44516	76611	111168	160	299	482	79	163	277
Rajasthan	149430	220449	247080	239	332	355	41	65	78
Tamil Nadu	174931	196369	255156	261	267	350	129	146	201
Uttar Pradesh	259394	356699	419809	151	192	196	108	156	178
Uttarakhand	40731	46823	62576	395	472	640	65	88	130
West Bengal	156269	281672	311647	108	324	338	100	329	363
All-India	2873680	3636861	4621503	245	309	386	79	112	152

Source : Transport Research Wing, Ministry of Road Transport and Highways, GoI

During the last fifteen years, road density has increased from 245 kms. per lakh of population to 386 kms. per lakh of population of the state. However, Bihar has the lowest road density, with 181 kms. per lakh populations, compared to 386 kms. at the all-India level. This is because of the high density of population in Bihar which reflects in a low road density per lakh population. The road density of seven major states was higher than the all India average of 386, while ten major states including Bihar has a lower density. In terms of road density in 2017, Kerala outperformed all other states, accounting for 692 kms. road length per lakh population, followed by Odisha (689 kms.) and Karnataka (565 kms.) (Chart 6.3). In terms of road length (kms.) per 1000 sq. kms. of area, Bihar ranked fourth (223 kms.) in 2017, substantially higher than the all-India average at only 152 kms. Some other states with high road density in terms of area were — Kerala (619 kms.), West Bengal (363 kms.) and Punjab (277 kms.).

Chart 6.3 : Total Road Length (km) per lakh population (2017)



Different agencies are involved in the construction of National Highways, State Highways, roads of Public Works Department, Urban Roads, Rural Road and other roads. The details of the roads in Bihar by different types are presented in Table 6.4. Out of 2,09,549 kms., a total of 1,17,573 kms road networks was surfaced. Roads under NH, SH and other PWD roads were fully surfaced, while 52 percent of rural roads, 43 percent of urban roads and 20 percent of other projects road were paved till 2017. A total of 92,000 kms roads are still not paved. Since Bihar is a largely rural state, about 80 percent of total road network comes under rural roads. Other PWD, urban roads and project roads constituted about 10-12 percent of the total road network. The figures in Table 6.4 also show that the expansion of rural roads has been faster than other roads in recent years and, secondly, the share of surfaced roads in the total rural length has increased substantially. The length of surfaced rural roads has been growing at 9.4 percent annually and increased by more than 50,000 kms between 2012 and 2017. The expansion of overall road network in the state has been growing at a rate of 6.5 percent, and more than 60,000 kms of the additional roads were constructed during the same period.

As already discussed, the State Government is committed to provide smooth road network to reach the capital Patna from any interior point of the state within five hours. The road density of different districts is shown in Chart 6.4. The chart presents the spread of road network (kms per lakh

population). Among all the districts, Jamui held the top position with 160 kms of road length per lakh population, followed by Aurangabad (152 kms) and Kaimur (143 kms). The districts of Begusarai (54 kms), Munger (67 kms) and Patna (69 kms) were at the bottom in terms of road density. In terms of road density (kms. per 1000 square kms. of area), the top three districts were Sheohar (1925 kms), Vaishali (1884 kms) and Darbhanga (1816 kms); at the other end, the three lagging districts were Lakhisarai (698 kms), Munger (726 kms) and West Champaran (734 kms). A total of 11 districts belonging to south Bihar and 7 districts of north Bihar had better road density compared to the state average.

Table 6.4 : Total and Surfaced Road Network by Authority in Bihar (2012 to 2017)

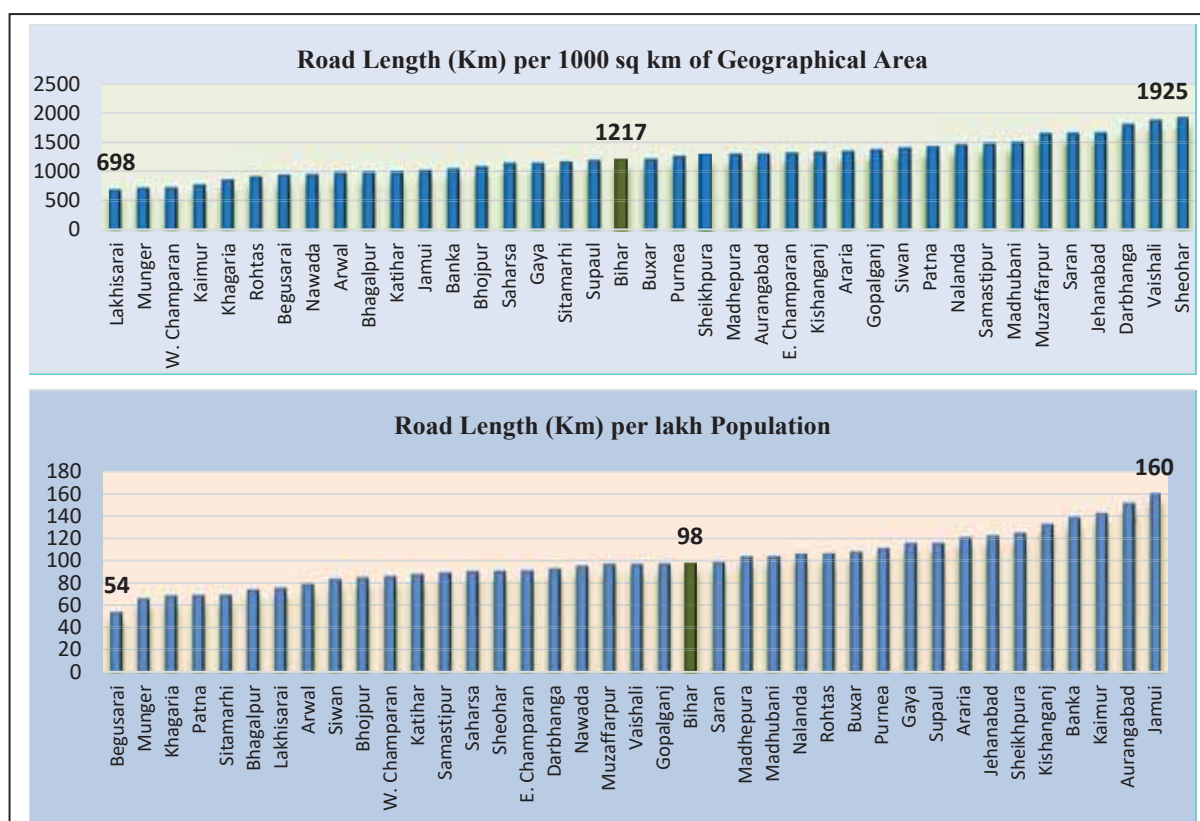
(Length in kms.)

Type of road		National Highways	State Highways	Other PWD Roads	Rural Roads	Urban Roads	Project Roads	Total
2012	Total	4105 (3.0)	4857 (3.5)	9030 (6.5)	108759 (78.5)	8918 (6.4)	2848 (2.1)	138517 (100.0)
	Surfaced	4105 (6.3)	4857 (7.4)	9030 (13.8)	42747 (65.4)	3819 (5.8)	797 (1.2)	65355 (100.0)
2013	Total	4168 (2.1)	4483 (2.3)	9401 (4.8)	167579 (85.0)	8760 (4.4)	2848 (1.4)	197239 (100.0)
	Surfaced	4168 (3.6)	4483 (3.8)	9401 (8.0)	94421 (80.8)	3661 (3.1)	797 (0.7)	116931 (100.0)
2014	Total	4467 (2.1)	4389 (2.1)	10128 (4.8)	179392 (85.5)	8823 (4.2)	2559 (1.2)	209758 (100.0)
	Surfaced	4467 (4.3)	4389 (4.2)	10128 (9.8)	80431 (77.6)	3699 (3.6)	508 (0.5)	103622 (100.0)
2015	Total	4701 (2.3)	4426 (2.1)	10128 (4.9)	175373 (85.1)	8823 (4.3)	2559 (1.2)	206010 (100.0)
	Surfaced	4701 (4.3)	4426 (4.1)	10128 (9.4)	84794 (78.3)	3699 (3.4)	508 (0.5)	108256 (100.0)
2016	Total	4839 (2.3)	4253 (2.1)	10634 (5.2)	175373 (84.9)	8826 (4.3)	2559 (1.2)	206484 (100.0)
	Surfaced	4839 (3.9)	4253 (3.4)	10634 (8.6)	99476 (80.6)	3702 (3.0)	508 (0.4)	123412 (100.0)
2017	Total	4839 (2.3)	4006 (1.9)	11145 (5.3)	178109 (85.0)	8891 (4.2)	2559 (1.2)	209549 (100.0)
	Surfaced	4839 (4.1)	4006 (3.4)	11145 (9.5)	93275 (79.3)	3801 (3.2)	508 (0.4)	117573 (100.0)

Note : Figures in the parenthesis denote percent share to total

Source : Transport Research Wing, Ministry of Road Transport and Highways, GoI

Chart 6.4 : District-wise Road Density in Bihar as on September 2019 (in kms)



National Highways (NH) Network

National Highways (NH) strengthen the economic foundation of any region and it has often led to the emergence of new towns along the highways. It also generates short-term employment during the course of construction and long-term employment through establishment of service points along the road (hotels, restaurants, etc.). The Central Government has started Bharatmala Pariyojna, the largest ever highway development programme in India, under which 34,800 kms of NHs are to be upgraded in the Phase 1 at an estimated cost of Rs. 5,35,000 crore. This project will ensure faster road traffic movement across the country by bridging critical infrastructure gaps. Further, the National Highway Authority of India (NHAI) envisions the development of new green corridors under the Bharatmala Pariyojana to connect remote areas. The project will reduce the cost of logistics, providing multimodal and efficient transport, last-mile connectivity and improve existing supply chain infrastructure in the country.

The total length of NH and its density in terms of population and area across the different states are shown in Table 6.5. The length of NH in Bihar has been gradually increasing over the years — from 3534 kms during the period 2003-07 to 4603 kms during 2013-17. The growth rate of NH construction was higher during 2013-17 compared to 2008-12. The density of road length per 1000

sq. kms had increased from 35.2 kms in 2003 to 51.4 kms in 2017. Of 56,043 kms additional NH construction between 2003 and 2017, the highest length (11,811 kms) had been constructed in Maharashtra, followed by Uttar Pradesh (3770 kms) and Rajasthan (3309 kms).

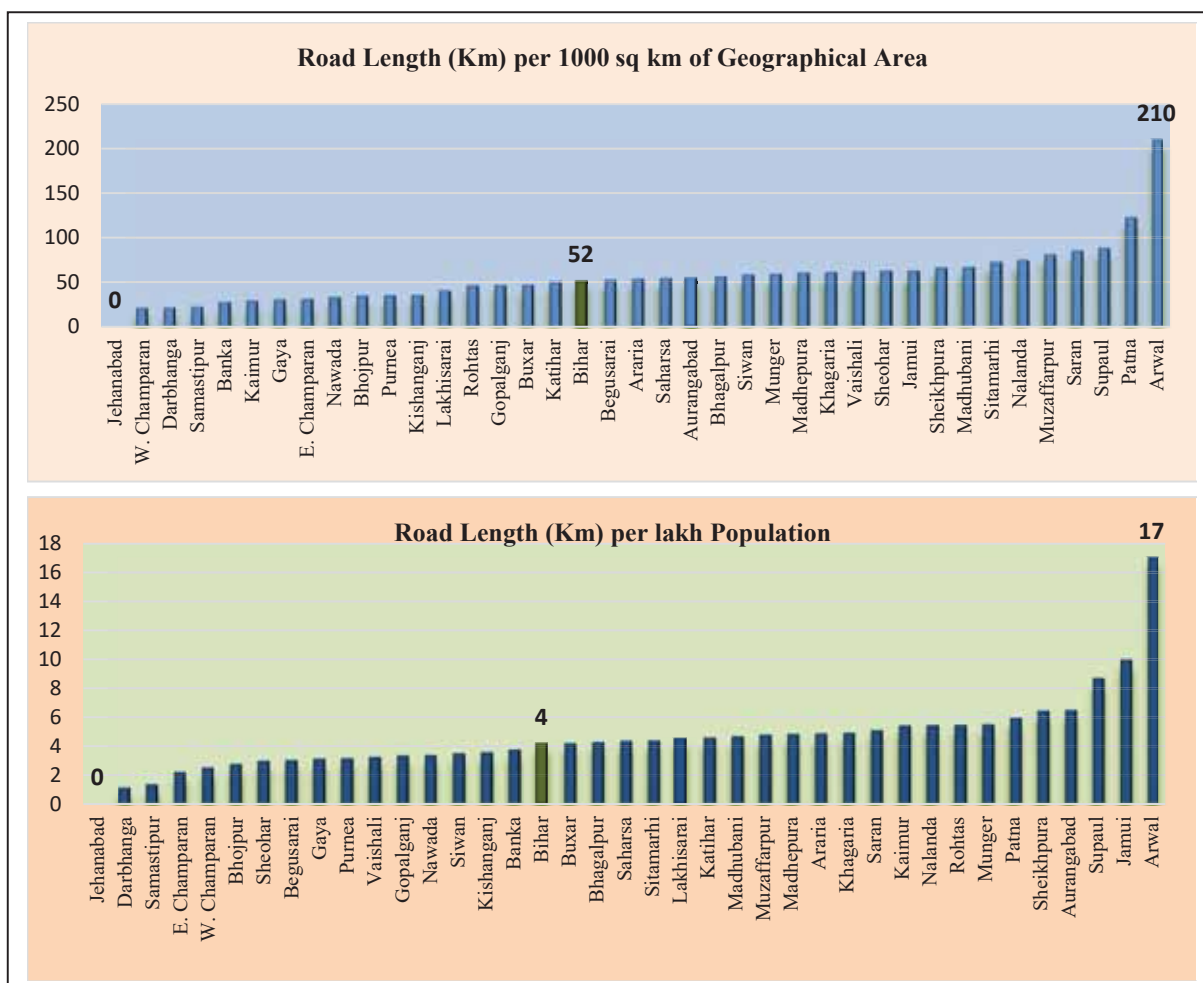
Table 6.5 : National Highways Network in Major States of India (2003-07, 2008-12 and 2013-17)

State	Road Length (kms)			Density					
				Length of existing NH in kms/lakh population			kms./ 1000 sq km		
	2003-07	2008-12	2013-17	2003	2010	2017	2003	2010	2017
Andhra Pradesh	4378	4524	5643	5.1	5.4	6.2	14.6	16.5	19.9
Bihar	3534	3735	4603	3.8	3.6	4.2	35.2	38.7	51.4
Chhattisgarh	2109	2205	2942	8.3	8.7	11.2	13.4	16.2	22.8
Gujarat	2939	3402	4696	4.7	5.5	7.7	12.5	16.5	25.3
Haryana	1463	1539	2247	6.2	6.1	9.7	30.7	34.3	59.3
Jharkhand	1765	1878	2656	5.7	5.6	7.4	20.1	22.6	33.3
Karnataka	3788	4285	6103	6.6	7.3	10.2	18.6	22.9	33.9
Kerala	1440	1457	1718	4.5	4.4	5.2	37.1	37.5	46.6
Madhya Pradesh	4881	4892	5693	7.4	7.1	6.6	15.1	16.3	16.8
Maharashtra	4066	4198	8133	3.6	3.8	6.3	11.8	13.6	24.2
Odisha	3623	3704	4657	8.7	8.9	11.0	21.2	23.8	31.1
Punjab	1557	1557	2207	6.2	5.7	9.6	30.9	30.9	55.0
Rajasthan	5387	5894	7705	7.8	8.3	10.6	13.4	16.3	23.1
Tamil Nadu	4210	4780	4963	5.8	6.8	6.6	28.9	37.2	38.0
Uttar Pradesh	5578	6803	8296	2.9	3.5	3.9	20.5	28.1	35.2
Uttarakhand	1808	2032	2519	12.2	20.6	24.9	20.1	38.2	50.7
West Bengal	2271	2588	2882	2.4	2.9	3.1	22.0	29.0	33.3
All - India	64487	71198	96713	5.5	6.0	7.8	17.7	21.6	30.7

Source : Ministry of Road Transport & Highways, Government of India

The district-wise spread of NH is shown in Table A 6.1 (Statistical Appendix). The increase in the length of NH during 2013-19 was 716.5 kms in Bihar. Jamui has been the most benefitted district through the construction of nearly 110.0 kms of additional NH, followed by Siwan (77.2 kms), and Katihar (56.1 kms). Chart 6.5 displays the road density in terms of area as well as population in different districts. With regard to population, the better performing three districts are — Arwal, Jamui and Supaul. In terms of area, the top three districts are — Arwal, Patna and Supaul.

Chart 6.5 : District-wise Road Density of National Highways in Bihar as on September 2019 (in kms)



A total of 43 NHs, measuring 4917 kms, traverse through Bihar as on September 2019 compared to 35 NHs (4321 kms) as on March, 2014. With the addition of 8 more NHs during these five years, the total length of NH has become 4917 kms. Table 6.6 shows the list of NHs passing through Bihar. As may be seen from the table, NH 31 has the maximum road length of 404 kms that pass thorough the state.

Chart 6.6 displays the percentage distribution of National Highways by their width. A major share of NH consists of multiple or double-lane roads (81 percent); the intermediate and single-lane roads account for 11 percent and 8 percent respectively. With combined efforts of the Central and State Governments, the length of multiple and double-lane roads has gradually increased over the years in Bihar.

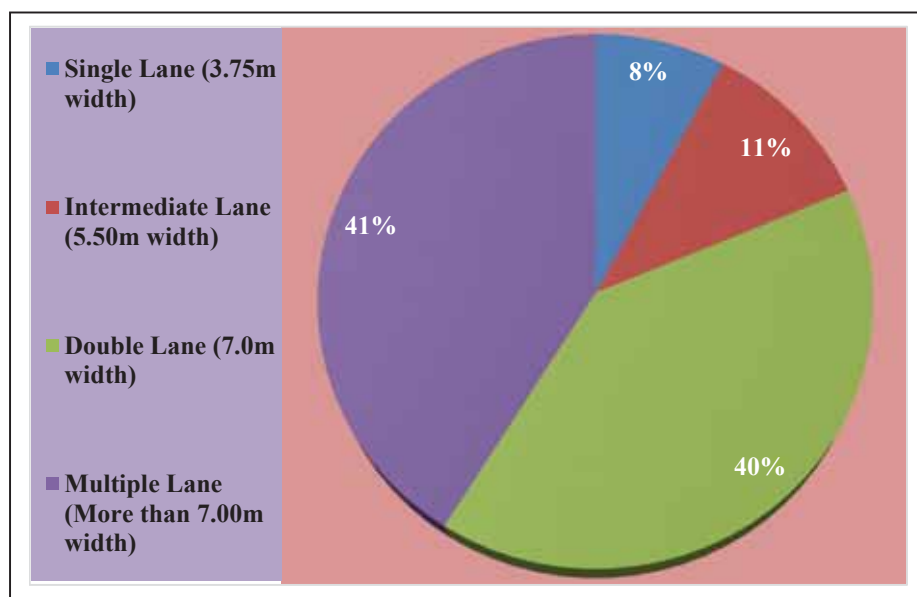
Table 6.6 : Number of National Highways and Length in Bihar (September, 2019)

(Length in kms)

Sl. No.	NH No.	Length (Km)	Sl. No.	NH No.	Length (Km)	Sl. No.	NH No.	Length (Km)	Sl. No.	NH No.	Length (Km)
1	2	205.7	12	82	147.0	23	106	135.1	34	327A	25.1
2	19	93.0	13	83	125.0	24	107	180.0	35	122A	31.8
3	28	267.3	14	84	74.0	25	57A	13.0	36	333A	198.9
4	28A	66.7	15	85	92.0	26	28B	112.0	37	527A	28.2
5	30	230.0	16	98	152.0	27	110	90.0	38	219	46.8
6	30A	69.0	17	99	11.2	28	2C	105.0	39	333B	18.4
7	31	404.0	18	101	65.0	29	333	146.7	40	133B	7.5
8	57	310.0	19	102	75.0	30	527C	64.2	41	727A	4.5
9	77	139.0	20	103	59.0	31	327E	227.1	42	227A	147.0
10	80	190.0	21	104	214.0	32	131A	81.1	43	120	145.0
11	81	55.0	22	105	55.0	33	133	11.0	Total		4917.2

Source : Annual Report, Road Construction Department, GoB

Chart 6.6 : Distribution of National Highway according to Width in Bihar (as on September, 2019)



The Central Government has the responsibility to build National Highways. Table 6.7 presents the details of the expenditure on NH development in Bihar and India during 2010-11 to 2017-18. The expenditure on development of NH in Bihar was Rs. 199 crore in 2010-11 and it constituted barely 1.18 percent of the all-India expenditure. In absolute terms, the expenditure has increased to Rs. 1524 crore in 2017-18, which constitutes 3.07 percent of the all-India expenditure. The expenditure on NH development had registered only marginal growth during 2010-11 to 2014-15. Thereafter, however, the expenditure has increased from Rs 277 crore in 2014-15 to Rs 708 crore in 2015-16

to Rs. 1524 crore in 2017-18. During the last two years, there has been a substantial increase in the share of Bihar in total national expenditure — 3.28 percent in 2016-17 and 3.07 percent in 2017-18.

Table 6.7 : Expenditure on National Highway Development in Bihar and India (2010-11 to 2017-18)

	(Rs. crore)							
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Bihar	199	232	129	271	277	708	1332	1524
India	16869	25287	16319	20605	24405	40464	40622	49646
Share of Bihar In All India	1.18	0.92	0.79	1.32	1.14	1.75	3.28	3.07

Source : Ministry of Road Transport & Highways, Government of India

Bihar has 4917 kms length of NH and more than 80 percent of these roads are two or more lane roads. In view of the high density of population, it is essential to have more NH in Bihar for smooth and fast traffic movement. At present, a number of projects are running in Bihar, some for construction of new roads, others for widening of existing roads.

National Highway Projects : There are 9 ongoing projects in Bihar, at different stages of progress. Out of these projects, two projects were approved for NH-2 (Varanasi-Aurangabad-Chordaha Border Section six-lane work) in which 260 kms roadway was taken up at a cost of Rs. 1730 crore. Another two projects were also approved under NH-28 (Bathanakutti in Uttar Pradesh –Devapur–Kotawa four lane work), involving 79 kms of length costing Rs. 806 crore. Under NH-19, the following projects have been initiated — (i) widening of 67 kms. from Chhapra to Hazipur at a cost of Rs. 575 crore, (ii) widening of 63 kms. from Hajipur to Muzaffarpur, and (iii) widening of 82 kms. of Muzaffarpur–Sonbarsha NH at a cost of Rs. 512 crore. The upgradation of 69 kms under NH28A from Pipara Kothi to Raxaul into 2-lane costing Rs 373 crore would be completed soon. In addition, 13 road stretches have been selected by the Central Government for widening. Out of these seven projects have been completed, four projects are in progress and the remaining two projects are yet to start.

As regards the new sanctions, five projects have been approved by the Central Government in three districts of Bihar (2 in Saran, 2 in Supaul and 1 in West Champaran) and they will cost Rs. 274 crore. The projects cover 45 kms. of road and 2 Rail Over Bridges (ROB). These projects are still under bidding.

The 4-lanning of 95 kms of road under NH82 (Gaya-Manpur-Hisua-Rajgir-Nalanda-Biharsharif) have been approved by Japan International Cooperation Agency (JICA). There are 16 ROBs

approved by the Central Government, of which seven are in progress, six are in under bidding and work for other three will start soon. A Hybrid Annuity Mode bridge over river Ganga in Mokama is under progress.

Bharatmala Pariyojana

The first phase of the project will be operational for a period of five years from 2017-18 to 2021-22. Bihar would be benefited under the three categories – Inter Corridors and Feeder Routes (305 kms), National Corridors Efficiency Improvements (70 kms) and Border and International Connectivity (50 kms). The total road length of 425 kms in Bihar under Bharatmala Phase-I constitutes 1.71 percent of all-India road length. The details are given in Table 6.8.

Table 6.8 : Road Project under Bharatmala Project Phase-I

(in kms)

Category	Total Length Identified		Bharatmala Pariyojana Phase-I		Bihar's Share in All-India	
	India	Bihar	India	Bihar	Total Length Identified	Bharatmala Pariyojana Phase-I
Economic Corridors	26163	—	9000	-	-	-
Inter Corridors and Feeder Routes	15403	272	6000	305	1.77	5.08
National Corridors Efficiency Improvements	13049	—	5000	70	-	1.40
Border and International Connectivity	5230	50	2000	50	0.96	2.50
Coastal and Port Connectivity	3305	—	2000	—	—	—
Expressways	1837	—	800	—	—	—
Total	64987	322	24800	425	0.50	1.71

Source : Press Information Bureau, MORTH, GoI

State Highway (SH) Network

The State Highways (SH) connect major district roads and establish the secondary level of road transport. The SH roads are constructed and maintained by the State Government. Table 6.9 presents the progress and density of SH in major states of India. The length of SHs has been gradually increasing in Bihar, from 3213 kms in 2003-07 to 4311 kms in 2013-17. The highest increase was registered during the period 2007-12, as the State Government spent substantially large amount to widen state highways network. For all-India, the length of SH has increased by 29,130 kms during 2003-07 to 2013-17. The expansion in the SH was the highest in Maharashtra (5781 kms), followed by Karnataka (5513 kms) and Tamil Nadu (4043 kms). As on March 2017,

Bihar ranked 7 in terms of SH road density per 1000 sq. kms, with 45.2 kms of SH per 1000 sq. km of area. In term of SH length per lakh population, Bihar holds 15th position among the major states of India, with 3.7 kms of road for one lakh population.

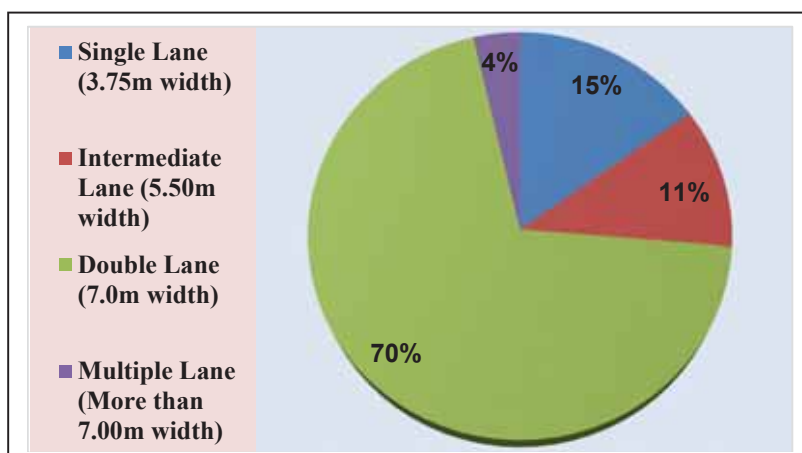
Table 6.9 : State Highways Network in Major States of India (2003-07, 2008-12 and 2013-17)

State	Average (Kms)			Density					
				Length of existing SH in km/lakh population			Length of existing SH in km/ 1000 sq km		
	2003-07	2008-12	2013-17	2003	2010	2017	2003	2010	2017
Andhra Pradesh	9295	10522	7327	10.6	12.5	7.4	30.1	38.1	23.6
Bihar	3213	4118	4311	2.7	3.9	3.7	25.3	42.4	45.2
Chhattisgarh	3300	4470	4719	16.6	20.9	16.3	26.7	38.8	33.0
Gujarat	18908	18446	17788	36.5	31.0	26.6	97.7	93.9	87.7
Haryana	2513	2522	2049	11.2	10.1	6.7	55.7	57.0	40.7
Jharkhand	1886	1886	1510	—	5.8	3.6	—	23.7	16.3
Karnataka	14563	20743	20076	18.1	34.1	30.6	51.2	107.0	102.1
Kerala	3871	4300	4341	11.0	13.1	12.5	90.7	111.7	111.8
Madhya Pradesh	8351	9969	11025	12.9	14.4	13.9	26.3	33.2	35.5
Maharashtra	33519	32909	39299	33.8	29.6	33.2	109.5	106.7	126.7
Odisha	4340	3708	4233	13.1	8.9	9.5	31.8	23.8	26.9
Punjab	1414	1460	1232	5.1	5.4	3.9	25.3	29.3	22.5
Rajasthan	9832	11090	12581	14.4	16.7	20.3	24.8	32.8	44.4
Tamil Nadu	7548	9871	11591	11.2	13.2	15.8	55.5	72.2	90.4
Uttar Pradesh	8801	8181	7428	5.2	4.1	3.3	37.4	33.0	29.7
Uttarakhand	1018	2461	4031	13.0	15.9	41.5	21.3	29.5	84.5
West Bengal	2306	3940	3683	4.3	5.0	3.8	39.8	50.8	40.7
All-India	142541	160291	171671	12.7	13.4	13.6	41.0	48.7	53.6

Source : Ministry of Road Transport & Highways, Government of India

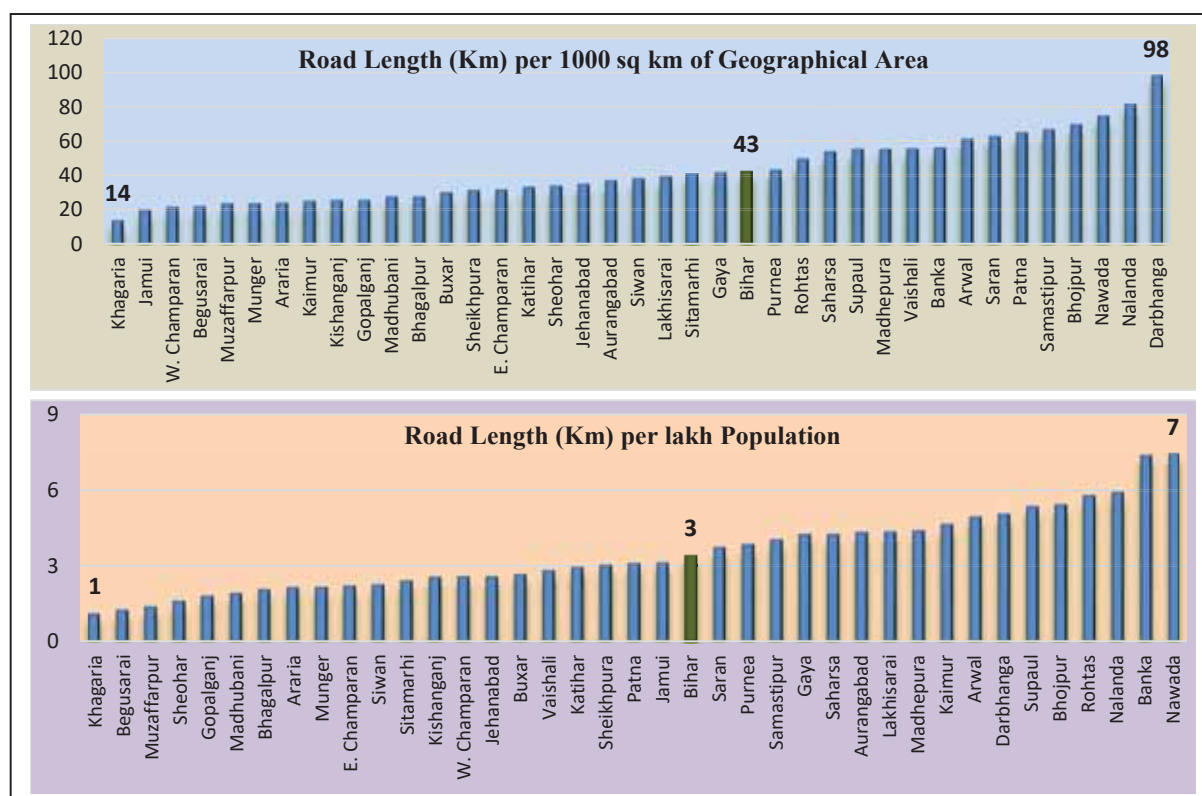
To improve the road density in Bihar, the State Government has undertaken various measures, as presented in Chart 6.7. As on September 2019, the total road network of SH in Bihar was 4006 kms, which constituted 2.1 percent of the total road length in the state. The State Government has been continuously expanding the SH network and improving its quality. The major components of SH is double-lane constituting 70 percent, followed by single-lane SH (15 percent), intermediate-lane SH (11 percent) and a very small portion (4 percent) of multiple-lane roads.

Chart 6.7 : Status of Bihar State Highways according to width as on September 2019



The spread of SH network across the district is not uniform and needs attention. The details of district-wise road network of SH are given in Table A 6.2 (Statistical Appendix). There are 25 districts which have benefitted from the upgradation of SH into NH. As on September 2019, Darbhanga (5.6 percent), Gaya (5.2 percent) and Patna (5.2 percent) were the leading districts in terms of share in total SH network. In terms of road length per 1000 sq. km of area, top three districts are — Darbhanga (98.3 kms.), Nalanda (81.5 kms), and Nawada (74.6 kms.). With regard to road length per lakh population, top three districts are — Nawada (7.5 kms), Banka (7.4 kms), and Nalanda (5.9 kms.). All these three districts are from south Bihar.

Chart 6.8 : Road Density of SH in Districts of Bihar (As on September 2019)



To improve the road communication in Bihar, the State Government has launched an ambitious project called Bihar State Highways Project (BSHP), with the financial support from the Asian Development Bank (ADB). In the first phase of BHSP, 825.4 kms of roads across 9 SHs have been completed at a cost of Rs. 2630 crore. After completion of the BSHP-I, the State Government has initiated BSHP-II for upgradation of 374.3 kms across 5 SHs into 2-lane, with a revised project cost of Rs. 3752 crore. Out of these 5 SH projects, 3 projects (SH 81 Sahar to Nasriganj, SH-89 and SH-90) have been completed and the remaining 2 projects (SH 78 and SH 91) are still under progress. ADB has sanctioned additional fund for four SHs (SH-83, SH-86, SH-87 and SH-88) for widening of 254.5 kms. into two-lane roads, with an outlay of Rs. 2171 crore. Under this project, major work (85 percent) has already been completed, including completion of SH-83 and SH-86. Further, 5 SHs selected by the State Government to be upgraded into two-lane through financing by ADB and has been included under BSHP-III. The total length of roads under BSHP-III is 231.8 kms. and the cost is Rs. 1860 crore. This cost will be met by loan from ADB (66 percent) and share of the State Government (34 percent). The works have been initiated. Further, ADB has also sanctioned loan for a 6-lane Ganga Bridge (9.8 kms bridge and 13 kms road) at an estimated cost of Rs. 4988 crore.

The rail-cum-road bridge on the Ganga river between Digha and Sonepur near Patna has minimized the distance and travel time for the freight as well as passengers. It has also helped in reducing the traffic load of Mahatma Gandhi Setu over the Ganga river. The total cost of this bridge construction was Rs. 2921 crore. The State Government had allocated Rs. 1240 crore for this bridge, using the Backward Region Grant Fund (BRGF). Another project supported under BRGF is elevated/semi-elevated road corridor project, which joins AIIMS in Patna (NH-98) with Digha Ghat (11.90 kms). This project has been completed at a total cost of the Rs. 1289 crore.

The cleanliness and beautification of the river Ganga is one of the priorities of the State Government. Presently, the Ganga Pathway of 20.5 kms (Digha to Didarganj in Patna) is under construction with 11.7 kms of elevated corridor, having four lanes with divided carriageway. About 40 percent of the entire work has been completed so far. The total cost of this project is Rs. 3390 crore, of which Rs. 2000 crore has been financed by taking loan from the Housing and Urban Development Corporation (HUDCO).

The State Government has also been working on some of the projects, under Public-Private-Partnership (PPP) mode. A Greenfield Bridge across the river Ganga, connecting Bakhtiyarpur Bypass on NH-31 and Tajpur on NH-28 is under construction at a total cost of Rs 1603 crore. A bridge of 5.5 kms with a total road length of 45.74 kms is covered under this. Till date, around 52 percent of the work has been completed.

Table 6.10 : Overview of Widening of State Highways

Agency-wise Road / Bridge	Length (kms)	Remarks
ADB (BSHP-I) upgradation of 2-lane of 9 SH	825.4	Cost of Rs. 2629.86 crore (work completed)
ADB (BSHP-II) upgradation of 2-lane of 5 SH	374.3	Revised Cost of Rs. 3751.88 crore –SH-89 & 90 and Sahar Nasriganj section of SH-81 completed. Work in SH-78,91 & Sakkaddi-Sahar section of SH-81 under progress
ADB (Additional Financing for BSHP-II) upgradation of 2-lane of 4 SH	254.5	Revised Cost of Rs. 2171.31 crore –84.31% completed (included the completion of SH-83 and substantial completion of SH-86). Rest work under progress
ADB (BSHP-III) upgradation of 2-lane of 5 SH	231.8	Cost of Rs. 1859.58 crore
ADB (Project in Pipeline) upgradation of 2-lane of 7 SH	324.96	Estimated Cost -Rs. 3145.38 Cr.
ADB (6-lane Ganga Bridge and Road Project)	9.8 (Bridge) 13.0 (Road)	Cost of Rs. 4988.40 crore - work under progress
BRGF (Ganga Bridge) Digha-Sonepur and approach road	Bridge on the Ganga River	Bridge complete and approach road in progress (cost of Rs. 2921 crore)
BRGF (AIIMS to Digha Ghat)	11.9	Cost of Rs. 1289.25 crore (96.09% work completed)
HUDCO (Road)	20.5 (Ganga Path)/ 11.7 (elev. cord.)	Revised Cost of Rs. 3390.00 crore (37% work completed) –work in progress
PPP Mode (Greenfield Bridge on Ganga - Bakhtiyarpur on NH-31 to Tajpur NH-28)	5.5 (Bridge) 45.74 (Road)	Cost of Rs. 1602.74 crore (52.07% work completed w.r.t EPC Contract)

Source : Department of Road Construction, GoB

Major District Road Network

The Major District Roads (MDR) traverse through the districts to provide communication to areas of production and markets and connect these with highways and railways. The total road length of MDRs is 13,498.65 kms, spread throughout the state. These roads account for more than one and a half times the combined length of NHs and SHs. However, the spread of the MDRs across the districts is uneven. Around 49 percent of the MDR roads are single lane (3.75 meters), followed by 37 percent of intermediate lane (5.50 meters), 12 percent of double lane (7.00 meters) and a small share of 2 percent multiple lane (more than 7.00 meters width). The State Government is committed to upgrade all these MDR roads to a minimum of intermediate lane standard (5.50 meters), so that MDRs could cope with the increasing traffic intensity.

The status and availability of Major District Roads across the districts are given in Table A 6.3 (Statistical Appendix). During the period 2014 to 2019, a total of 4098 kms. of MDRs have been constructed. The three most benefitted districts are – Gaya (527 kms), Patna (359 kms), and Darbhanga (315 kms). During the same period, the districts of Katihar (111 kms), Banka (50 kms) and Saharsa (41 kms) have been benefitted most through upgradation of MDR into SH / NH. Chart

6.10 presents the road density of different districts of Bihar, as on September 2019, in terms of road length per 1000 sq.km. The top three districts are — Darbhanga (315 kms), Jehanabad (308 kms) and Patna (255 kms). However, the top three districts based on road density per lakh population are — Sheikhpura (24 kms), Jehanabad (23 kms) and Supaul (22 kms).

Chart 6.9 : Composition of Major District Road According to the width (As on September 2019)

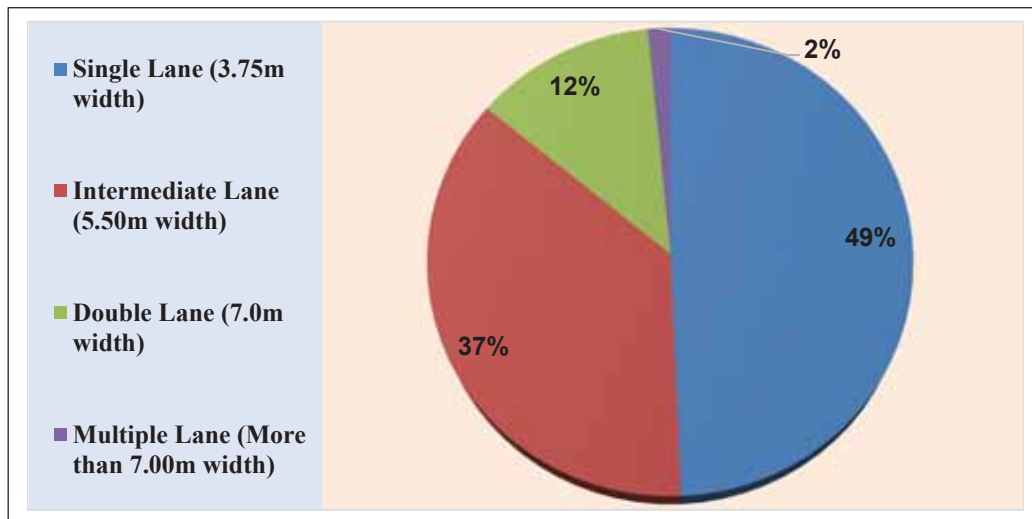
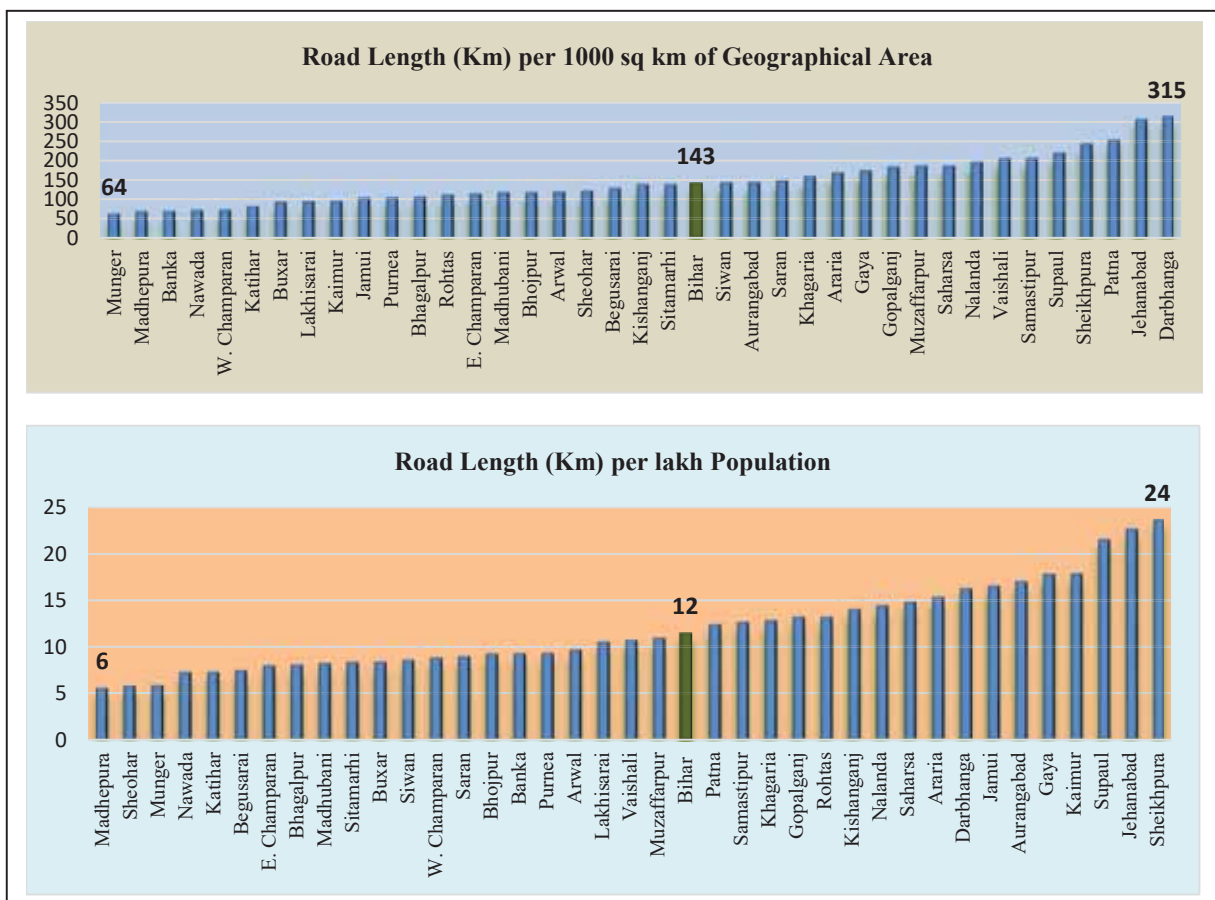


Chart 6.10 : Road Density of MDR in Bihar Across the Districts (As on September 2019)



A number of sources of funding are utilized for construction, widening and maintenance of the MDR projects. These sources are — State-Plan, Rural Infrastructure Development (RIDF) grants, Central Road Fund, Road Connectivity Project Fund for Left Wing Extremism-Affected Areas, Indo-Nepal Border Road Development Programme, Roads of Economic Importance, Roads of International Importance, and Finance Commission grants.

State Schemes : Under the state schemes, different road projects are being implemented through Scheduled Caste Special Component Scheme, Major District Road Scheme and other schemes. Many schemes are financed through HUDCO, ADB, PPP, etc. A total of 825.31 kms. of MDR is under progress at a cost of Rs. 2057 crore. In addition, 339.53 kms of road length has been sanctioned costing Rs. 1512 crore during 2018-19. Under this scheme, 743.27 kms of MDRs have been widened / strengthened / renovated during 2018-19. There is an additional provision of Rs. 1094 crore under Major Road Scheme and Rs. 950 crore under Scheduled Caste Special Component Scheme sanctioned by the State Government.

Left Wing Extremism-affected Area Road Development Scheme : The Road Requirement Plan-I (RRP-I) was executed for Left Wing Extremism (LWE) affected districts (Arwal, Aurangabad, Gaya, Jamui and Jehanabad) involving 41 road projects of 675.35 kms by the Central Government, costing Rs. 616 crore. The road projects comprised of 71.8 kms of NH, 68.1 kms of SH and 534.4 kms of MDR. Further, RRP-II has been initiated in 6 identified LWE affected districts of Bihar. Under this, 1052.27 kms road length of MDR have been identified under 60 MDR projects. The project is jointly funded by the Central and State Governments. A total of Rs 2070 crore of central share and Rs. 180 crore of state share have been budgeted for the financial year 2019-20.

Indo-Nepal Border Road Project : The Indo-Nepal border road project has benefitted the states of Bihar (564 kms), Uttar Pradesh (640 kms) and Uttarakhand (173 kms). This project will facilitate smooth patrolling of the border by security forces, besides bringing about overall development of the surroundings of border area through providing access to nearby market and towns. The stretch of the border road projects in Bihar passes through 7 districts — West Champaran, East Champaran, Sitamarhi, Madhubani, Supaul, Araria and Kishanganj. The Central Government has approved 552.3 kms road length at a cost of Rs. 1656 crore under this project. The State Government has also contributed Rs. 2261 crore for land acquisition, environmental clearance and utility shifting. In addition, NABARD has provided a sum of Rs. 984 crore for

constructing 121 bridges in alignment with the border roads. The Indo-Nepal border road project includes 127.3 kms of NH, 82.0 kms roads of Water Resource Department and 211.0 kms of rural roads.

Rural Infrastructure Development Fund (RIDF) : A number of projects under RIDF I to RIDF XIII have been completed in the past. In the recent years, a total of 326 projects under RIDF-XIV to RIDF-XXIII have been approved at a cost of Rs. 6259 crore which will be met from a loan from NABARD. The NABARD has also provided a loan of Rs. 790 crore under RIDF-XXIV in 2018-19 and made provision of Rs. 1136.7 crore for 2019-20.

Central Road Fund (CRF) : A total of 125 projects have been approved under this fund, and out of this, 83 projects have been completed, 18 projects are in progress and rest 24 are under tendering stage. The Central Government has released Rs. 102 crore under CRF during 2018-19, and Rs. 400 crore has been budgeted under the CRF for 2019-20.

Rural Roads Network

The rural communication is a crucial requirement for development of rural habitats. Rural roads help significantly to generate higher agricultural income and prospects for productive employment. It also provides ample opportunity to the rural population for accessing economic and social services. For this, both Central and State Governments are committed to connect every village through rural roads. The State Government has resolved *Ghar tak Pakki Gali Naliyaan*’ as one of its goal under Saat Nishchay (Seven Resolves). The public investments made by the State Government in rural roads has been growing at a very impressive rate and it increased by more than five times during the last seven years. From Rs. 1874 crore in 2012-13 the investment has reached to Rs. 10,476 crore in 2019-20. The total paved road was only 35 percent in 2015; but thereafter, the length of paved rural roads grew at an annual rate of 15 percent and its share reached 75 percent in 2019. The length of the paved rural roads has increased to 92,204 kms in 2019, from 48,794 kms in 2015.

Since 2004-05, the State Government has built around 40,000 kms of rural roads at a total cost of Rs. 20,000 crore. In addition, a sum of Rs. 25,000 crore has been spent on construction of 52,203 kms of rural roads under the Pradhan Mantri Gram Sadak Yojana (PMGSY) during the last fifteen years. Till 2019, a total of 52,194 kms of rural roads was constructed under this scheme. Apart

from these roads, 4122 bridges (including small bridges) have been constructed, 19,331 kms of roads has been repaired, and 41,857 kms of roads maintained under routine maintenance at a cost of Rs. 5274 crore. The PMGSY accounted for 56.6 percent of total rural roads. The State Government has initiated two ambitious programmes — Mukhya Mantri Gram Sampark Yojana (MMGSY) and Gramin Tola Sampark Nishchay Yojana (GTSNY) to provide household level connectivity in scattered habitations. Under MMGSY, 10,825.4 kms of rural roads were built at a cost of Rs. 7279 crore, and 2788.52 kms of rural roads were constructed at a cost of Rs. 1503.4 crore under GTSNY till September 2019. A budgetary provision of Rs. 1035 crore has been made for 2019-20 and 724.3 kms of rural roads have been built till September 2019. A sum of Rs. 2915.95 crore has been budgeted for the financial year 2019-20 and 883 kms of roads and 11 bridges have already been built till September 2019 under MMGSY. Under PMGSY, 220 kms of roads and 95 bridges at a cost of Rs. 581 crore have been constructed till September 2019.

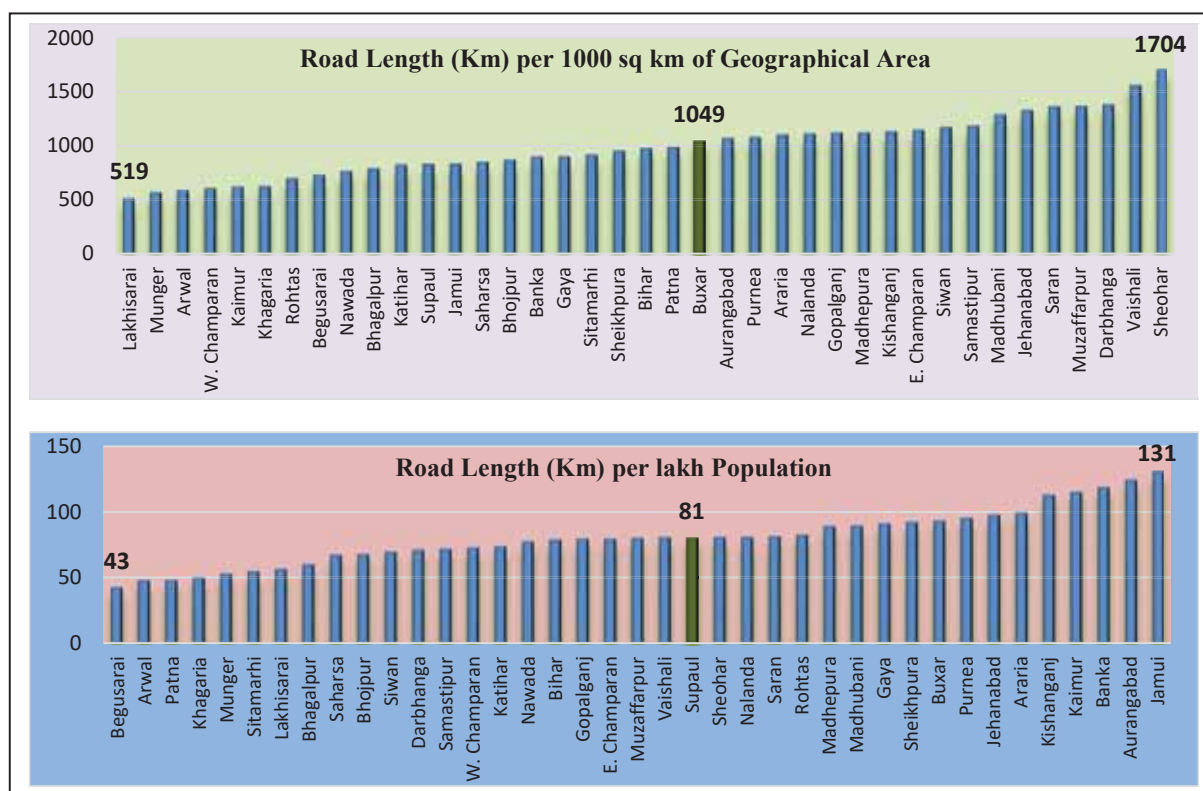
Table 6.11 : Programme-wise Length of Rural Roads Constructed (September, 2019)

Name of Scheme	Road Constructed (kms)	Bridge Constructed (Nos.)	Expenditure (Rs. crore)
Gramin Tola Sampark Nishchay Yojana (GTSNY)	2788.52		1503.38
Mukhya Mantri Gram Sampark Yojana (MMGSY)	10825.40		7277.99
Pradhan Mantri Gram Sadak Yojana (PMGSY)	52194.11	393	24562.01
State Scheme	3511.77	401	4770.10
Other State Plan Schemes	22883.60	39	5954.64
Total	92203.40	833	44068.12

Source : Department of Rural Works, GoB

The extent of network of rural roads in different districts is presented in Table A 6.4 (Statistical Appendix), which provides the details of road length and the progress during the last five years (2015 to 2019). The total paved rural roads increased by 34,815 kms since 2015, nearly 7000 kms per year. The maximum increase in paved rural road was registered in — Gaya (2182 kms), Aurangabad (1928 kms), and East Champaran (1585 kms). However, these districts are large districts in terms of geographical area. For knowing the spread of rural roads, it is, therefore, necessary to note the road density with respect to both area and population. It is clear from Chart 6.8 that three top districts in terms of rural roads per 1000 sq.km. of area are — Sheohar, Vaishali and Darbhanga. In terms of rural roads per lakh of population, three leading districts are — Jamui, Aurangabad and Banka.

Chart 6.11 : Rural Road Density in Bihar Across the Districts (As on September 2019)



Bihar Output and Performance Road Maintenance Contract Policy – 2018

Road Asset Management (RAM) or road maintenance is one of the top priorities of the State Government for timely and quality maintenance of road network in the state. Performance-based road maintenance contracts (PBC) are an essential element of RAM and their implementation contributes to improving the effectiveness and efficiency of the maintenance of road networks. Well-designed PBCs keep roads in predefined good condition at relatively low cost. The Long-term PBCs are often referred to as Road Asset Management Contracts. The State Government has introduced this policy for newly constructed projects, with a condition of maintenance for five years' tenure. Further, this policy ensures the emergency repair and construction of roads affected by natural disaster. In addition, measures for tree plantation along road side, road safety symbols, information board, speed breaker, crash barrier etc. have also been included. This policy also ensures that, along with five-year routine maintenance, the International Roughness Index (IRI) standard would also be compulsorily maintained, within an upper limit of 4000 mm per km.

Rural Works Department, Government of Bihar, has set a goal for construction of 17,500 kms of rural roads during 2019-20 under Bihar Rural Road Maintenance Programme and administrative approval for a total of 16,075 kms of rural road has been provided.

Bihar State Road Development Corporation Limited (BSRDCL)

The building and maintenance of roads in the state is an ongoing process. In this background, the State Government has established Bihar State Road Development Corporation Limited (BSRDCL) in 2009 under the Companies Act, 1956. It has an objective of construction, repair and maintenance of roads, bridges, and tunnels. Due to excellent work performance of BSRDCL, it has been declared as an ISO 9001:2008 certified corporation.

The BSRDCL has taken up 13 SH projects for double-lane and a 6-lane bridge over river Ganga under ADB supported project. A road length of 93 kms. of Gaya-Manpur-Hisua-Rajgir-Nalanda-Biharsharif section has been sanctioned for upgradation into four lane under a project supported by Japan International Cooperation Agency (JICA). The cost of the project is Rs. 2116 crore and 41 percent of the work has been completed. BSRDCL has also taken up a project of four-lane bridge on river Ganga from Karja Village on NH-31 to Tajpur on NH-28. The bridge has a length of 5.6 kms. and the project also includes 45.4 kms. of approach road. The total cost of the project is Rs. 1603 crore, and 50 percent of the work has already been completed. In addition, Digha-Didarganj four-lane Loknayak Ganga Pathways (35 percent of work completed), AIIMS-Digha 4-lane elevated corridor of 12.27 kms (96 percent of work completed), and approach road from Digha to AIIMS have also been sanctioned under the Engineering, Procurement and Construction (EPC) mode. A bridge from Yogapatti-Navalpur-Ratwal Chowk involving 37 kms of road is sanctioned under Central Road Fund and is expected to be completed by March, 2020.

The financial status of the BSRDCL is presented in Table 6.12 for 2012-18. The Corporation has been continuously generating profit since its inception. The turnover of the BSRDC has been fluctuating over the years and it registered maximum turnover of Rs. 1624.30 crore in 2016 and a minimum turnover of Rs. 730.10 crore in 2013. The different projects with their progress are also presented in Table 6.12.

The Corporation has been generous enough towards the society since its inception and has been contributing to the Mukhya Mantri Relief Fund to the tune of around Rs. 10 crore every year. Apart from this, the Corporation has also taken up several works under Corporate Social Responsibility (CSR) in the field of social welfare and public health. In addition, BSRDCL has financed a Giraffe ‘Srishti’ at the Sanjay Gandhi Botanical Garden at Patna. A Rifle and cartridges costing Rs. 8.90 lakh have been provided to the shooter Ms. Meera Kumari which will give her a mileage in her sport career. Under CSR, the Corporation has donated 35 stretchers and 60 three-seater chairs

Table 6.12 : Status of Financial Management of BSRDC Ltd. (2012 to 2019)

Calendar Year	2012	2013	2014	2015	2016	2017	2018	2019 upto Sept. 19
Financial Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Turn Over (Rs. crore)	956.89	730.10	879.27	1221.22	1624.30	1490.92	813.67	1173.55
Profit + Tax (Rs. crore)	66.45	46.69	56.50	88.50	119.69	107.61	61.14	46.61
Profit (Rs. crore)	53.12	37.35	44.70	69.42	93.87	84.48	48.95	29.24
BSHP-I								
Target (Million USD)	132.4	50.77	Close					
Achievement (Million USD)	125.27	50.77						
Achievement (percent)	94.6	100.0						
BSHP-II								
Target (Million USD)	25.50	40.00	28.00	41.60	46.50	39.40	28.05	
Achievement (Million USD)	16.86	31.20	27.63	38.60	44.08	33.40	28.05	
Achievement (percent)	66.12	78.00	98.68	92.78	94.78	83.50	100.00	
Additional Financing under BSHP-II								
Target (Million USD)	-	23.00	42.00	43.40	26.50	17.80	11.00	51.19
Achievement (Million USD)	-	21.60	37.09	43.40	23.80	12.45	4.64	27.67
Achievement (percent)	-	93.9	88.3	100.0	89.8	69.97	42.2	45.95
BSHP-III								
Target (Million USD)								45.70
Achievement (Million USD)								20.79
Achievement (percent)								45.5

Source : Road Construction Department, GoB

to IGIMS, Patna. A total of 250 traffic trollies have been provided for smooth and efficient traffic on Mahatma Gandhi Setu. The cost of these trollies is Rs. 30 lakh. In addition to this, a total of 150 trollies were given to District Magistrate, Vaishali, to facilitate uninterrupted traffic on NH-19 at a cost of Rs 18 lakh. A multi-purpose hall was built at a cost of Rs. 26.36 lakh for Mahadalit Girl's School, Danapur. A passenger vehicle costing Rs. 6.25 lakh was donated to the Ashadeep Institute for mentally and physically challenged children. The Corporation has taken up the financial responsibility for beautification and renovation of the road from Raj Bhavan to Secretariat. The cost of this project would be around Rs. 8.00 crore. It also maintains the Shatabdi Smarak at Saguna More. In addition, the Corporation renovated and beautified the historical Mangal Talab at Patna Sahib.

6.5 Bridge Sector

Bridges are important component of the roadway and railway networks, especially in densely populated regions. Bridges make the road network more efficient by shortening distance and reducing travel time. Many rivers flow within Bihar and, therefore, a network of bridges has been constructed in the state or some more are under construction. The six bridges already operational on river Ganga are at — Buxar, Patna, Mokama, Bhagalpur, Ara-Chhapra and Jai Prakash Bridge. Four more bridges Kachchi Dargah-Bidupur (6 lane bridge), Bakhtiyarpur-Tajpur Bridge, Munger Bridge and Sultanganj-Aguanighat Bridge are under construction. The Sultanganj-Aguanighat Ghat bridge has unique features. As this bridge is located in the Dolphin Sanctuary area, a Dolphin glass observatory hanging from the bridge will be constructed. The bridge also has Intelligent Traffic System (ITS) facility. In addition to these bridges, the State Government has decided to construct five more bridges over the Ganga, parallel to Buxar Bridge, Jai Prakash Bridge, Mahatma Gandhi Bridge, Rajendra Bridge and Vikramshila Bridge for better connectivity between north and south Bihar. The State Government has also built bridges over other major rivers. For example, four bridges have been taken up over Gandak river, of which two (Dhanha-Ratwal and Gopalganj-Bettiah) have already been completed and other two (Satar Ghat and Bangra Ghat) are under progress. On river Kosi, three bridges (Kosi Mahasetu, Baluaha Ghat bridge and Vijay Ghat bridge) are ready, while renovation work on Dumri Ghat bridge has been completed. In addition, two more bridges at Bheja Ghat and Fulaut Ghat have been proposed. Till 2005, only two bridges were there on the Sone river, but now one more bridge at Arwal-Sahar is operational. In addition to these, work for two more bridges (Daudnagar-Nasriganj and a six-lane bridge parallel to Koilwar bridge) are in progress. Presently, 8 bridges are operational on river Bagmati. There was only one bridge on the Falgu river till 2005. However, the State Government has sanctioned six more bridges, four of which are completed and two are under construction. There are now more than 30 bridges on river Budhi Gandak. A total of 1392 major or minor bridges and culvert projects have been completed since March 2010 under Mukhyamantri Setu Nirman Yojana (MMSNY) at a cost of Rs. 10,989 crore.

Under Road Over Bridge (ROB) Project 2005, all the 22 bridges have been completed, except one at Mithapur. Further, all the 11 bridges under ROB-2010 Project have been completed, except one at Narkatiaganj yard. In addition, under ROB-2013, a bridge on SH-4 at Manpur has been completed through the state fund of Rs. 95 crore. Apart from these, the State Government has

agreed to fund 50 percent of the cost for 65 ROBs on railway crossings. The NABARD has also supported the construction of mega bridges in Bihar through loans under RIDF (Rural Infrastructure Development Fund). Under RIDF-VII to XIII, all projects have been completed. Further, 326 projects have been approved involving Rs. 10,844 crore under RIDF-XIV to RIDF-XXIII and 14 projects have been sanctioned at a cost of Rs. 790 crore under RIDF-XXIV in 2018-19. During 2019-20, a sum of Rs. 1136.7 crore has been provisioned by NABARD for different projects in Bihar. Under Mukhyamantri Setu Nirman Yojana, nine projects have been sanctioned with a budget of Rs. 29.00 crore in 2018-19 and six projects for Rs. 26.50 crore.

Bihar Rajya Pul Nirman Nigam Limited (BRPNL)

The BRPNL is a Public Sector Undertaking, registered under Indian Companies Act, 1956 and the State Government contributed a share of Rs. 5.00 crore as its capital. It is one of the profit-making Public Sector Undertaking in the state. The Corporation builds the bridges and roads, besides maintenance of roads and collection of road tolls. As on September 2019, the BRPNL has completed 2202 projects, costing Rs. 12,704 crore since March 2005, including project under Mukhyamantri Setu Nirman Yojana. The financial summary of BRPNL is given in Table 6.13. The average gross profit of the Nigam is more than Rs. 100 crore per year and net profit is above Rs. 60 crore per year during 2012-13 to 2018-19. The maximum turnover of Rs. 1840 crore was registered in 2016-17; whereas, the minimum of Rs. 1273 crore was in 2012-13. The revenue collection also varied between Rs. 118 crore in 2017-18 to Rs. 183 crore in 2014-15. Overall, the Corporation has been continuously striving for its sound financial position and quality improvement of the projects.

Table 6.13 : Financial Status of Bihar Rajya Pul Nirman Nigam Limited (2012-13 to 2018-19)

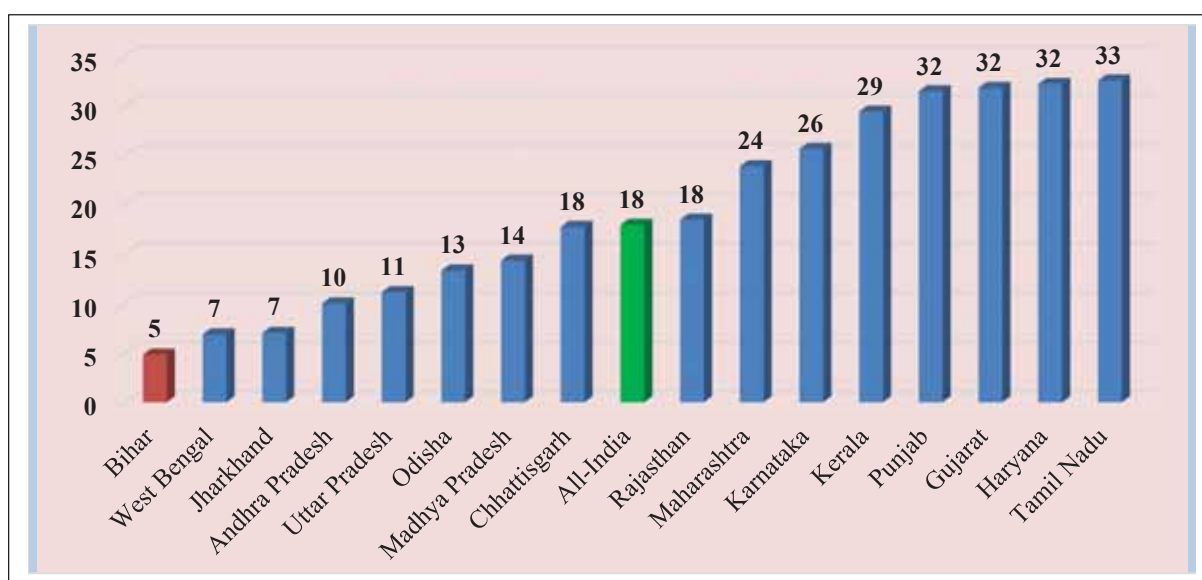
Year	No. of Bridges	Expenditure (Rs. crore)	Turnover (Work Execution) (Rs. crore)	Total Revenue (Rs. crore)	Administrative Expenditure (Rs. crore)	Gross Profit (Rs. crore)	Net Profit (Rs. crore)
2012-13	136	788	1273	142	35	107.0	63.8
2013-14	119	1152	1481	159	39	120.1	72.5
2014-15	179	730	1739	183	44	139.1	80.9
2015-16	176	2835	1699	151	43	107.7	70.3
2016-17	103	1188	1840	147	39	108.2	68.8
2017-18	84	638	1501	118	40	78.09	38.0
2018-19	94	1622	1503	128	48	80.66	42.7

Source : Bihar Rajya Pul Nirman Nigam Limited, GoB

6.6 Road Transportation

Road transport is easily accessible and more convenient. Therefore, every year new vehicles of various types are registered, both in Bihar and elsewhere in India. Chart 6.12 shows the details of motor vehicles registered in major states of India in 2015-16. The total number of registered vehicle per lakh population was the highest in Tamil Nadu (33 vehicles), closely followed by Haryana, Gujarat and Punjab (32 vehicles) and Kerala (29 vehicles). The number of vehicles per lakh population was the lowest in Bihar (5 vehicles), followed by West Bengal, Jharkhand (7 vehicles) and Uttar Pradesh (10 vehicles). At all-India level, registered vehicles were 18 per lakh population.

Chart 6.12 : Registered Motor Vehicles per lakh population in Major States of India (2015-16)



Source : Ministry of Road Transport and Highways, GoI

The progress of vehicle registration in the state is shown in Table 6.14. Under the Motor Vehicle Act, the Department of Transport registers new vehicles and thereby generates revenues. Table 6.14 also shows the trend of such revenue collection from registration of motor vehicles in Bihar. As most of the population in the state reside in the rural areas, the registration of two wheelers is growing at a much faster rate, compared to other vehicles. Apart from this, the major growth drivers of registered vehicles are — trucks (20.6 percent), cars (19.0 percent) and trailers (12.2 percent). The number of new motor vehicles registered has increased annually by 17.7 percent during the 6 year period (2013-19). In 2018-19, a total of 11.89 lakh vehicles were registered, compared to only 5.53 lakh in 2013-14. The revenue through tax collection under Motor Vehicles Act in the state increased substantially from Rs. 835 crore in 2013-14 to Rs. 2067 crore in 2018-19, registering an annual growth of around 20 percent during the last six years.

Table 6.14 : Year-wise Number of Registered Vehicles and Revenue Collection (2013-14 to 2018-19)

Vehicle Type	Year-wise Number of Vehicles ('000)						CAGR (2013-19)
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	
Truck	11	13	14	20	23	27	20.6
Bus	2	2	2	3	3	3	11.0
Car	23	28	31	34	50	54	19.0
Taxi	12	7	6	5	6	5	-13.4
Jeep	9	9	12	9	13	6	-3.4
Auto	35	31	37	42	37	46	6.0
Two-Wheeler	420	477	549	593	929	978	19.7
Tractor	31	34	35	38	33	38	2.9
Trailor	8	12	18	20	14	16	12.2
Others	2	2	2	1	11	16	52.7
Total	553	615	704	764	1118	1189	17.7
Revenue Collection (Rs. crore)	835	967	1071	1250	1625	2067	19.5

Source : Department of Transport, GoB

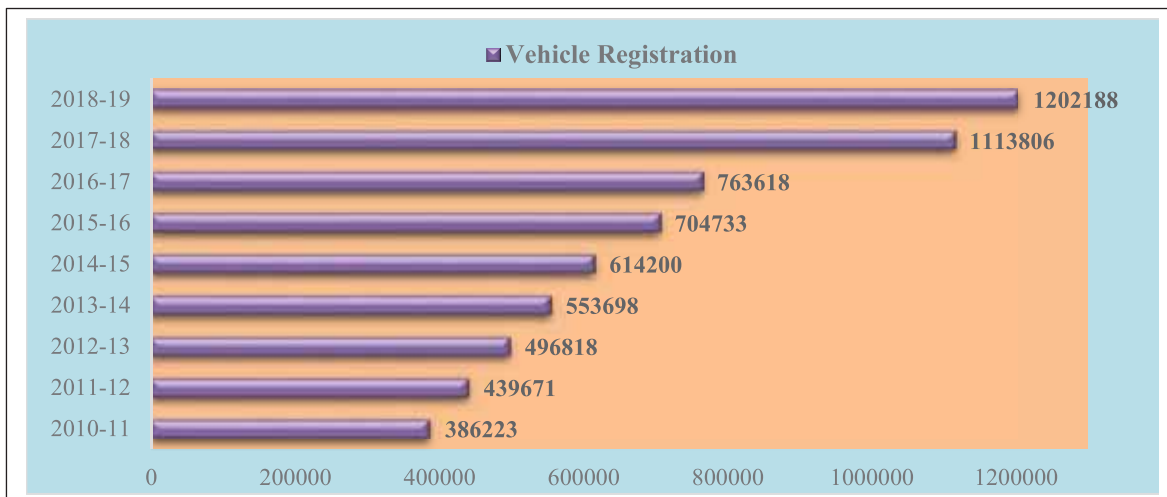
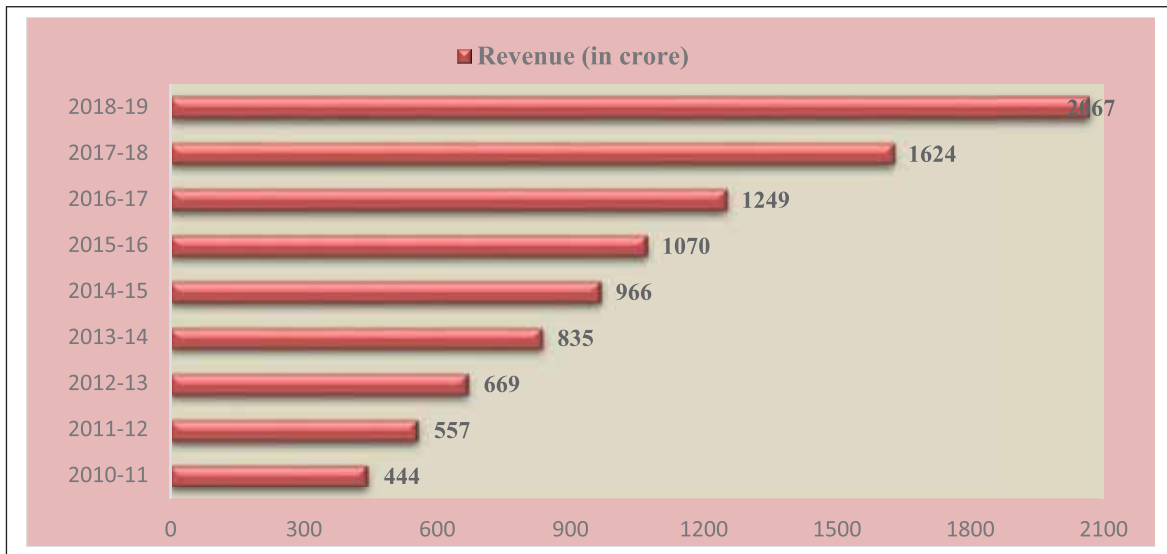
The ownership of vehicles is not spread evenly among the districts. The number of vehicles registered in different districts is presented in Table A 6.5 (Statistical Appendix) for the year 2018-19. Patna, being the state capital, is the most prosperous district, which is reflected through the highest registration (32 percent) of vehicles like cars, jeeps and two wheelers. East Champaran is the leading district in terms of ownership of tractors. Similarly, Patna and Muzaffarpur are ahead in terms of ownership of trucks.

The State Government has strengthened the transport system through stopping illegal transportation, overloading, enforcement of Transport Act, installation of high security number plates, and establishment of Common Facility Centres (CFC) in each district. Apart from these initiatives, many e-governance facilities are being provided for issuance of license, vehicle registration and grant of permits, using e-payment on a specified portal. The online-payment facility is operational throughout the state and it is helping to increase the revenue of the Transport Department. This e-payment is executed through the O-Gras portal of the Finance Department. To promote the ownership of commercial vehicles by women for their self-reliance, the State Government has granted them hundred percent concession in the registration fee. These concessions are applicable for three-wheelers, motor cabs and maxi-cabs. E-rickshaw is also promoted by the State Government to check air and noise pollution.

Revenue Collection and Vehicular Growth

The efforts made by the Department is presented in Chart 6.13 for growth in revenue collection and vehicle registration during last ten years.

Chart 6.13 : Physical and Financial Achievements of Transport Department (Revenue in Rs. Crore and Vehicle and License in Number)



New Initiatives of Transport Department

A well-developed transportation system is a backbone for economic development of the state. The Department of Transport endeavors to improve the services in the area of transport with an objective of ‘Har Safar Ka Humsafar’ (companion of every journey). Many measures have been taken in Bihar in the recent years, using technological innovations. The system is strict enough to enforce the Motor Vehicle Act and, at the same time, provide easy and convenient services to the citizens of the state.

Mukhyamantri Gram Parivahan Yojana (MMGPY) : Development of a strong and efficient transportation system for the rural hinterlands is of prime eminence for the socio-economic development of Bihar. MMGPY makes a strong case to address the gaps in the passenger transportation system prevalent in the state. The scheme aims to empower the rural youth and the

marginalized sections of society so that they too can be a part of the mainstream. MMGPY envisions providing self-employment opportunities to more than 40,000 unemployed people of the state. As an initiative to promote seamless and convenient public transportation from the remote areas to cities, MMGPY aims to bridge the gap between the opportunities available to the rural population vis-à-vis the population living in the cities.

Amnesty Scheme : Amnesty Scheme is a limited-time opportunity for a specified group of taxpayers to pay a defined amount in exchange for forgiveness of a tax liability (including interest and penalties) relating to previous tax periods and without fear of criminal prosecution. The State Government on November 15, 2019 has initiated Amnesty Scheme to grant amnesty to the vehicle owners of Tax Defaulter & Fitness Defaulter, registered and unregistered Tractor-trailer, and other Commercial Vehicles. The scheme was applicable for till March 2019 and the department had earned more than Rs 100 crore.

Inspection and Certification Centre (I&C) at Bihta, Patna : The existing vehicle inspection system has several weaknesses. To eliminate the subjectivity in the existing practice and bring in more objective practice, Inspection and Certification (I&C) programme is required to be implemented, which includes a combination of both Visual (having pre-defined guidelines) and Automated tests for Brakes, Suspension, Speedometer, Emissions, etc. The I&C centers will be set up at Bihta on a land of 3 acres provided by the State Government at an estimated cost of Rs 16.50 crore, being sanctioned by the Ministry of Road Transport and Highways (MORTH), Government of India.

Institutes of Driving and Traffic Research (IDTR) – Aurangabad : It is a joint venture between the Department of Transport, Government of Bihar and Maruti Suzuki India Ltd inaugurated on May 3, 2018. IDTR has adopted world class systems and quality standards. The institute is spread over more than 25 acres and has scientifically engineered training and testing tracks of international standards. The total cost of the project is Rs 25.15 crore. The salient features of the IDTR are – (a) Air-Conditioned class room, (b) Driver Training Simulators, (c) Scientifically developed track, (d) Auditorium with seating capacity of 180 persons, (e) 80-bed hostel facility, and (f) Canteen.

Shared Mobility : The more people use shared modes, it is more likely that they are to use public transit, own fewer cars, and spend less on transportation, overall. Shared modes complement public transit, and enhance urban mobility. Shared modes will continue to grow in significance, and public entities should identify opportunities to engage with them to ensure that benefits are widely and equitably shared. Bihar Taxi Aggregator Policy-2019 has been notified and has become

effective from January 4, 2019 which ease passenger travel by taxi or motorcycle. Bike Taxi operators are also allowed to ply. Rent-a-Cab Policy has also been notified, effective from January 4, 2019 and, under this policy, citizens will be able to rent a vehicle having tourist permit, and travel as per their ease and requirement.

DigilLocker : This allows for legal acceptance of Driving License and Registration Certification at par with original document. Targeted at the idea of paperless governance, DigilLocker is a platform for issuance and verification of documents and certificates in a digital way, thus eliminating the use of physical documents. Transport Department of the State Government aimed at the concept of paperless governance by implementation of DigilLocker through which citizens can access their digital documents anytime, anywhere and share it online. This is convenient, time saving and this will result in assured authenticity of such documents and reduction of administrative overhead. With this integration, people will no longer need to carry around physical copies of their Registration Certificate and Driving License. They can instead access digital copies of the same on their mobile phones via the DigilLocker mobile app.

e-Challan via Handheld Device and CCTV : This scheme promotes adoption of e-challan through CCTV and Hand-Held Device/Terminal for management of traffic violations in near real time, data maintenance, generation of prosecution reports and to prosecute repeat violators for appropriate punishment as provided in Motor Vehicle Act. Presently, CCTV based e-challan and through handheld device are being implemented across the state. The e-challan system is to ensure that all traffic violation are recorded in real time and stolen vehicles are tracked and legally prosecuted accordingly.

e-Auction Policy : Registration numbers of choice (at the cost of their Minimum Reserve Price) for motor vehicles in Bihar shall be, henceforth , allotted by “e- auction” process to vehicle owners.

A distinguished link via VAHAN 4.0 software will be provided for access to interested vehicle owners for log-in, followed by online credit of prescribed amount (Minimum Reserve Price), depending upon a specific registration number to participate in e-auction process for allotment of premium registration numbers of their choice by the Transport Department.

Implementation of Vahan 4.0 and Sarathi 4.0 software : All the 38 Districts have been upgraded to Vahan 4.0 and Sarathi 4.0 software. This has resulted in more transparency in the working of the Department and it also ensures that registration of all vehicles in Bihar is also recorded in the National e-register. In addition, the facility of registration of vehicles at the dealer point has been provided to get rid of inconvenience caused to the buyers of vehicles. The waiting time for Registration Certificate and Driving License has been reduced to minimum. In addition, the department facilitates the applicants by delivering RC and DL via speed post to provide improved

services, law compliance, status tracking of RC/DL and SMS alert services and quick and easy availability of delivery information. It helps to authenticate address of the applicant by reducing turn-around time at DTO office, compilation of MIS for decision-making and in easy detection of malpractices.

E-governance : Information and Communication Technology plays a stellar role as transparency, responsiveness and accountability are required by the citizens in the services and by the Department in administration and services, both. It's helpful to overcome the problems of coordination due to manually operated services in the regional offices as well as headquarters. The major initiatives taken are as follows:

- Online payment facility of motor vehicle tax and fees, driving license, vehicle registration,
- Online Permit Services
- Online License Services (Pollution Centre, Fitness Centre, Petrol Pumps & Motor Driving Training Institute)
- Automated Pollution Under Control
- Legacy Data Digitization

Inter-state Transport : An advanced and developed transport system connects backward regions with towns and markets within the state as well as other states for social, cultural and economic development. In order to facilitate inter-state road transportation, the State Government has made several agreements with the nearby states for convenience of passengers. In this background, the State Government has signed agreement with Jharkhand (200 routes), Chhattisgarh (28 routes), Odisha (07 routes), West Bengal (45 routes) and Uttar Pradesh (34 routes).

CNG & Electric Vehicles : Department has taken various initiatives to promote EV or CNG-based vehicles and 50% road tax rebate is being given by the Department for battery-operated/ electric vehicles being registered in the state. At present, 5 CNG stations are operational in Patna and more shall be operational soon.

Bihar Clean Fuel Scheme : Passenger three-wheelers are a critical part of the public transport infrastructure. They provide last mile connectivity and access to areas that are underserved by public transport. Bihar Clean Fuel Scheme 2019 will aim to incentivize the replacement/conversion of existing diesel/petrol operated three-wheelers to CNG auto-rickshaws/EVs and also retrofitting of petrol-operated motorcar/maxi cab. The Transport Department plans to ensure that no diesel-operated auto-rickshaws ply on the roads of Patna after March 31, 2021.

Pollution Reduction Measures : Air pollution in Patna, Gaya and Muzaffarpur, the three prominent cities of Bihar, is a major concern which needs to be tackled systematically through

coordinated efforts between the government and other stakeholders. A concerted effort has been made by the Department of Transport to bring about a material improvement in the air quality of these cities through continuous interventions to strive towards reducing vehicular emissions. The Department of Transport has taken several instrumental steps for bringing down the pollution levels in Bihar. These are as follows :

- (a) Restriction on plying of age-old vehicles – The state government issued a notification banning all government vehicles that are more than 15 years old. Commercial vehicles that are more than 15 years old have been banned in Patna and adjacent regions. The state government launched the Bihar Clean Fuel Policy, 2019 that prohibits plying of diesel-operated vehicles in Patna from 31 January 2021 and in Danapur, Khagaul & Phulwarisharif from 31 March, 2021. The state government has also levied Green Tax on commercial vehicles that are more than 12 years old.
- (b) Incentive to switch over to greener fuels – (i) Purchase Incentive (CNG) : The state government launched the Bihar Clean Fuel Policy, 2019 that shall provide a one-time subsidy of Rs 40,000/- (Rupees Forty Thousand only) per vehicle on replacement of existing diesel/petrol-operated passenger three-wheelers with new passenger CNG-based three-wheelers. (ii) The Bihar Clean Fuel Policy, 2019 provides for one-time conversion incentive of Rs 20,000/- (Rupees Twenty Thousand only) to a three-wheeler passenger vehicle/motorcar/maxi cab with a valid permit issued by the Regional Transport Authority, Patna to help cover the cost of CNG Kit retrofitting. (iii) The state government has banned issuance of new permit to three-wheeler passenger vehicles in Patna urban area. The government is also planning to introduce the same in Gaya and Muzaffarpur.
- (c) Efforts towards electric mobility – The state transport department provides a rebate of 50% of MV Tax to all electric vehicles being registered in Bihar. Bihar Clean Fuel Policy, 2019 provides for one-time a subsidy of Rs 25,000/- (Rupees Twenty Five Thousand only) per vehicle on replacement of existing diesel/petrol-operated passenger three-wheelers with new passenger electric vehicles. The state transport department is in the final stages of finalizing the Electric Vehicle policy for the state, which aims to incentivize the purchase of EVs and setting up EV charging infrastructure in the state. Bihar State Road Transport Corporation (BSRTC) plans to procure 25 Electric Buses under Government of India’s FAME-II scheme.
- (d) Facilitation of Pollution-under-Control (PUC) Centers – The state government has mandated all PuC centers to issue online PuC certificates only. The state government has made it mandatory for all petrol pumps to have a PuC center. The procedure to set up new PuC centers has been simplified and the state government has launched an online portal for

application of new and renewal of PuC center license. The state government has relaxed the norms related to purchase of pollution checking equipments before applying for a PuC license. The fee for licensing/renewal of PuC centers has been reduced by the state transport department. The state transport department has relaxed the educational qualification norms required for operating a PuC center. Mobile Pollution Centers have also been granted approval to facilitate doorstep pollution check service.

- (e) Strict enforcement & monitoring – The state transport department conducts regular pollution check drive to put a curb on defaulters. The District Transport Officers undertake regular calibration tests of Pollution-testing equipments being used at PuC centers. The Motor Vehicle Inspectors carry out fitness check of transport vehicles on a periodic basis to ensure adherence to pollution norms. An automated inspection and certification center is also being set up on Bihta for gauging road-worthiness of vehicles.

Bihar State Road Transport Corporation (BSRTC)

The Bihar State Road Transport Corporation (BSRTC) is a State Public Sector Undertaking, which is continuously striving to provide transport services to the people, which is accessible and affordable. In order to provide safe and comfortable services to the passengers, the public transportation system in the state has been strengthened, and currently 410 buses are plying in rural and urban areas under the Corporation. In addition, 231 buses are running under Public-Private Partnership (PPP) mode. In the light of increasing population of Patna, 107 buses have been provided for easy and speedy travel in Patna and nearby areas. The State Government has provided free passes to Jai Prakash Senani to travel in the public transport. There are special buses for women only, and 65 percent of seats in common buses are reserved for women. Again, 50 percent concession is allowed to differently-abled persons, up to the limit of 50 kms of journey, and two seats are also reserved in every bus for them. A mutual agreement has been signed to provide 3 bus services for comfortable and frequent travel between Bihar and West Bengal. Similarly, for travel between Bihar and Uttar Pradesh, 13 buses have been provided. BSRTC has facilitated two buses for Bodh Gaya – Patna – Kathmandu and four Buses for Patna-Janakpur for daily transportation. Table 6.15 presents the summary of revenue collected and passengers carried by the BSRTC. The revenue collection by the Corporation has been growing steadily, and it was Rs. 151.2 crore in 2018-19, more than seven times the amount collected in 2014-15 (Rs. 21.6 crore). The revenue has increased by 42.3 percent annually during the last seven years. The number of passengers carried by the Corporation has also been growing annually at 13.4 percent. In 2018-19, it carried 320.0 lakh passengers, compared to 146.6 lakh passengers in 2012-13. This indicates the extended coverage of services and changed perception

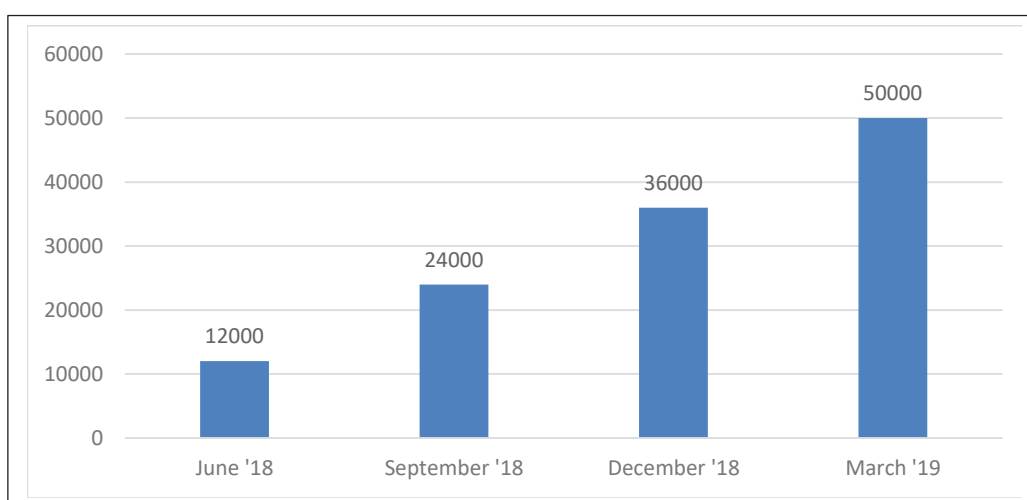
about the public transport by the people shown in Chart 6.14 the daily passenger has increased by more than four times within a year's period.

Table 6.15 : Revenue Collection and Number of Passengers Carried by BSRTC (2012-13 to 2018-19)

Particular	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	CAGR (2012-19)
Revenue Collection (Rs. crore)	26.0	21.1	21.6	24.9	61.4	124.8	151.2	42.3
No. of Passengers Carried (lakh)	146.6	152.3	110.6	126.6	184.5	212.0	320.0	13.4

Source : Bihar State Road Transport Corporation, GoB

Chart 6.14 : Quarterly Growth of Average Daily Passenger during 2018-19



6.7 Railway Network

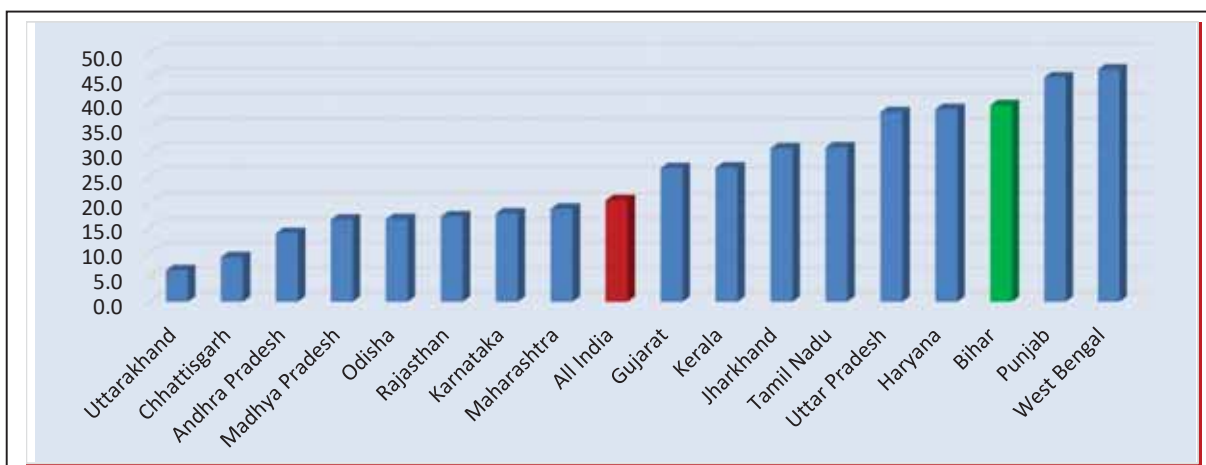
Indian Railways Network is one of the oldest and largest rail networks in the world, spread over 68,400 kms route. It is the lifeline of the country, carrying nearly 230 lakh commuters every day, making it the largest passenger carrying system in the world. It is also the 4th largest freight transporter in the world, transporting 116 crore tonnes of freight annually, as it traverses the length and breadth of the country. Railways is an affordable means of transportation for millions of passengers and also for bulk freight. Uttar Pradesh had the longest rail route (8989 kms) in India, and Bihar was at the 9th position among major states of India in 2017. Table 6.16 provides the details of rail route and its density across the major states of India in 2017. The length of rail route in Bihar was 3714 kms. The share of rail route in Bihar was 5.5 percent of the total rail route. The density of rail route in Bihar was 39.4 kms per 1000 sq. km of area. However, Bihar had only 3.2 kms of rail route available per lakh of population compared to 5.2 kms at the national level. In terms of rail route per lakh population, Gujarat topped with 8.1 kms, and West Bengal topped with 46.6 kms per 1000 sq. km in terms of geographical area.

Table 6.16 : Progress of Rail Route Network in Major States of India (2003-07, 2008-12 and 2013-17)

State	Average (Kms)			Rail Density					
				Rail Route (length in km) per lakh population			Rail Route (length in km) per 1000 sq km of Area		
	2003-07	2008-12	2013-17	2003	2010	2017	2003	2010	2017
Andhra Pradesh	5191.0	5224.8	4018.4	—	—	4.3	—	—	13.9
Bihar	3344.4	3540.0	3678.4	3.7	3.5	3.2	34.2	37.9	39.4
Chhattisgarh	1174.0	1186.6	1203.6	5.4	4.7	4.4	8.7	8.8	9.0
Gujarat	5288.8	5236.6	5258.6	10.1	8.4	8.1	26.9	25.5	26.8
Haryana	1582.0	1533.2	1662.2	7.1	6.2	6.3	35.2	35.1	38.7
Jharkhand	1915.6	1991.6	2287.6	6.4	6.2	6.9	22.6	25.1	30.8
Karnataka	2988.8	3049.6	3299.0	5.5	5.1	5.4	15.5	16.0	17.9
Kerala	1050.0	1050.0	1048.0	3.3	3.2	3.0	27.0	27.0	26.9
Madhya Pradesh	4873.2	4938.0	5004.6	7.7	6.9	6.5	15.7	16.1	16.6
Maharashtra	5504.2	5588.8	5740.8	5.5	5.1	4.9	17.7	18.2	18.8
Odisha	2283.4	2417.6	2544.4	6.2	5.8	5.9	14.9	15.3	16.7
Punjab	2112.6	2137.8	2258.2	8.4	7.8	7.8	41.7	42.4	45.1
Rajasthan	5864.4	5784.6	5885.4	10.0	8.6	7.9	17.2	16.9	17.2
Tamil Nadu	4169.6	4060.8	4027.2	6.5	5.7	5.4	32.2	31.2	31.0
Uttar Pradesh	8606.4	8709.2	8989.2	5.1	4.4	4.2	36.5	36.2	38.0
Uttarakhand	345.0	345.0	343.0	3.9	3.5	3.1	6.5	6.5	6.4
West Bengal	3812.8	3933.6	4090.2	4.5	4.3	4.3	41.5	43.8	46.6
All-India	63293.4	64064.4	66264.2	5.9	5.4	5.2	19.2	19.5	20.5

Source : Annual Report 2018-19, Indian Railways, Government of India

Chart 6.15 : Rail Route Density (in km) per 1000 sq km of Geographical Area (As on March 2017)



Achievements of Railways in Bihar

The Union Ministry of Railways had established East Central Railway Zone in Bihar, with Hajipur as its headquarters. Some parts of the state are under the jurisdiction of the Northeast Frontier Railway, Eastern Railway and Northeast Railways. Two greenfield locomotive factories (Electric Locomotive Factory, Madhepura and Diesel Locomotive Factory, Marhaura) have been established in the state. Some of the important achievements of Railways in Bihar are as follows:

Infrastructure Creation : Between 2014 and 2019, Railways built 191 kms of new lines in Bihar, apart from 135 kms of doubling the track, 248 kms of gauge conversion, 1226 kms of railway track electrification, and built 85 Rail Over/Under Bridges for expansion of railway services. Two rail bridges over Ganga at Patna and Munger have already become operational. In addition, a new bridge over Ganga at Bhagalpur has been sanctioned. The construction of a new bridge over Kosi is also near completion and will provide transportation in flood affected Kosi region. Further, a new double line bridge, parallel to Rajendra Bridge in Mokameh, is under progress. The Railways have surveyed 2540 kms of new track for lagging regions at a cost of Rs. 40,234 crore.

Dedicated Freight Corridor : The Dedicated Freight Corridor Corporation of India is constructing two dedicated freight corridors to improve freight services. About 1840 kms long Eastern Dedicated Freight Corridor passes through four districts (Kaimur, Rohtas, Aurangabad and Gaya) in Bihar, and the stretch of this corridor in Bihar is about 240 kms. The estimated cost of this project is Rs. 6900 crore and is expected to be completed by December 2020.

Safety : Since Railways safety is on the high priority, there remains no unmanned level crossings in Bihar as on September 2019. Presently, Gate Mitra is deployed on all unmanned level crossings. Under Integrated Security System (ISS), there are 287 CCTV cameras installed at different stations in Bihar. The Railway Police Force has rescued 2557 children with the help of CCTV and handed over them to their guardian/ NGOs/police.

Passenger Services : Since 2014, for the convenience of the passengers, 52 pairs of new trains have been introduced and stoppages of more than 100 pairs of trains allowed at different stations. Recently, 32 foot over-bridges, 20 escalators, 11 lifts, 1050 platform sheds, 166 water vending machines, and toilets for differently abled persons have been provided at 27 major stations. In addition, at 81 stations in Bihar, the platforms have been either expanded or raised. Further, 23 new Unreserved Ticket Counters (UTC), 10 new UTC-cum-Passenger-Reservation-Counters (PRC) and one PRC have been opened. Free and fast wi-fi network has also been provided at more than 50 stations.

6.8 Civil Aviation

Air transport is an imperative facilitator for attaining economic growth and it also enables integration of different regions with the global economy. It provides an opportunity for trade, tourism and employment and minimizes the travel time. The air transport is developed and managed by the Central Government, with an objective of 'Sab Ude Sab Jude' (Let all fly and all connect). Bihar has registered a massive growth in air transport sector, as GSDP of this sector has increased from Rs. 31 crore in 2011-12 to Rs. 252 crore in 2018-19 (Chart 6.1). This implied an annual growth rate of 35.6 percent. As many as 40.61 lakh passengers availed air travel during 2018-19, compared to 31.11 lakh in 2017-18. The domestic passenger traffic registered an annual growth rate of 36.6 percent during the period 2014-15 to 2018-19. Similarly, the aircraft movements increased by 31.0 percent annually during the same period. The freight movement has also increased by more than six times, from 1.04 thousand tonnes in 2004-05 to 6.32 thousand tonnes in 2018-19. The freight business has crossed the previous year's volume in the first six months of 2019-20. (Table 6.17).

Table 6.17 : Summary of Aircraft Movements, Number of Passengers and Freights at Patna Airport (2004-05 to 2019-20)

Year	No. of Aircraft Movements	Passengers (in lakh)	Freight (in '000 tonnes)
2004-05	3844	1.76	1.04
2009-10	10734	5.53	2.53
2014-15	11060	11.97	5.20
2015-16	13947	15.84	4.41
2016-17	15508	21.12	6.59
2017-18	24479	31.11	6.32
2018-19	32169	40.61	6.32
2019-20 (upto Sept. 19)	18257	22.80	6.46
CAGR (2014-19)	31.0	36.6	7.8

Source : Airport Authority of India, Patna

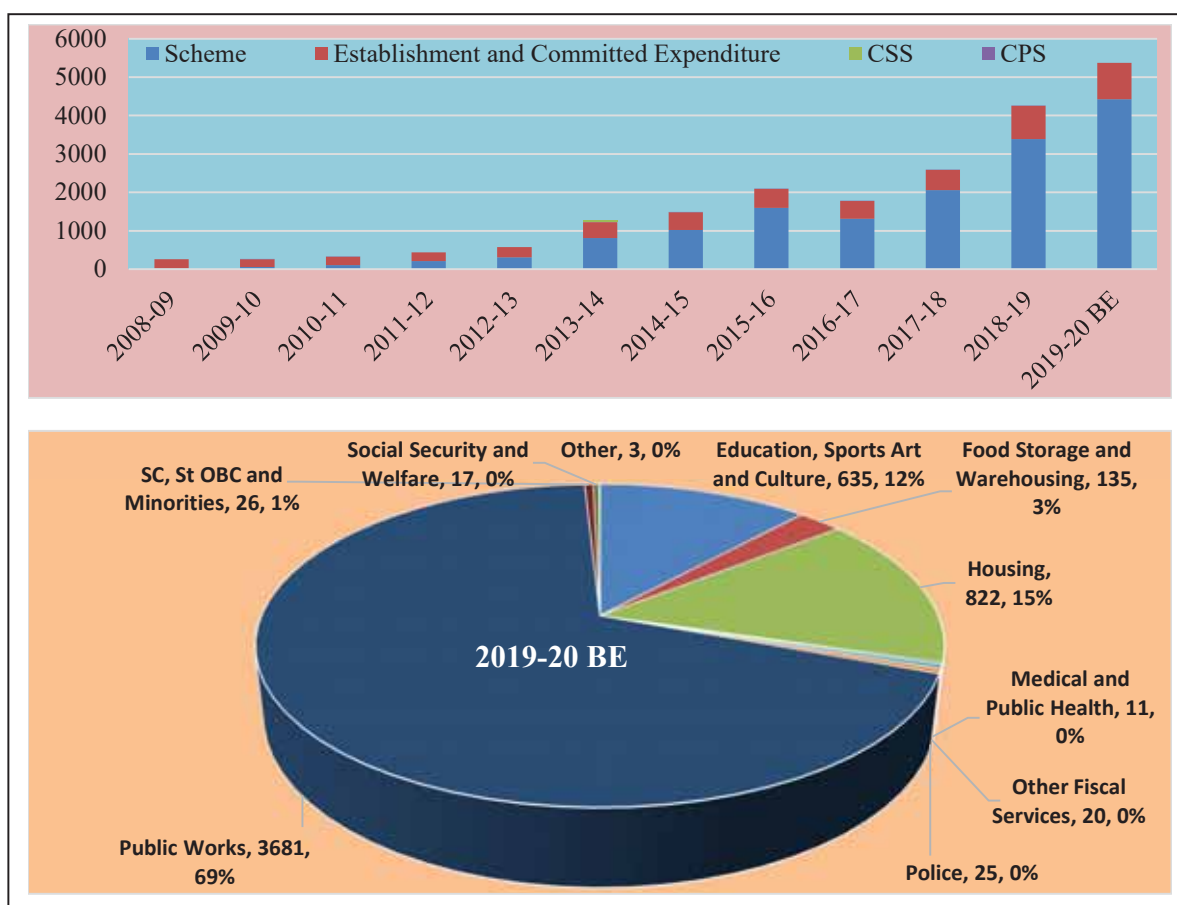
Ude Desh Ka Aam Naagrik (UDAN)

UDAN is a joint initiative of Central and State Government, providing subsidy for flying at the ratio of 80:20 for the general category states, introduced under the National Civil Aviation Policy, 2016. It enhances the regional connectivity by providing regional air transportation at affordable cost to the masses. Darbhanga has been included under UDAN-II and work is in progress for construction of the proposed airport. Patna airport has already provided aircraft movement under UDAN from Patna to Prayagraj since June 2018. There are 27 airports / airstrips listed under different categories of aircraft under UDAN-IV. A solar power plant has been installed with the capacity of 219 kwh at Jayprakash Narayan International Airport, Patna to reduce carbon emission.

6.9 Building Construction

Bihar has witnessed a double digit growth since 2005 in the construction sector. The State Government is committed to provide an adequate and quality infrastructure for delivering good governance, including good buildings for health institutions, educational institutions, administrative offices, community halls, warehouses, Kisan bhavans, museums, etc. The construction of buildings also generates employment for the youth in the state. A number of projects have been undertaken and completed for construction of buildings, within the stipulated time frame. The expenditure on building construction and has been continuously increasing and registered 34 percent annual growth in the last 12 years (2008-20) (Chart 6.16). This growth is even higher for scheme expenditure which recorded 62 percent annual growth during the same period, compared to 15 percent for establishment and committed expenditures. Among all the projects, Public Works Department alone account for 69 percent of the funds, followed by Department of Urban Development and Housing (15 percent) and Department of Education, Sport, Art and Culture (12 percent).

Chart 6.16 : Expenditure of Building Construction Department (Rs. crore)



Source : Building Construction Department, Government of Bihar

The Department of Building Construction has optimally utilized its limited resources and achieved most of the physical targets of several ambitious projects. A State Sports Academy-cum-International Standard Modern Cricket Stadium in Rajgir is under construction at a cost of Rs. 633.00 crore. Mahabodhi Convention Centre, Gaya is being constructed at a cost of Rs. 145.00 crore. A sum of Rs. 301.40 crore is being spent on building Budh Samyak Darshan Sangrahalaya and Smriti Stup at Vaishali. In addition, A.P.J. Abdul Kalam Science City is being developed at a cost of Rs. 397.00 crore in Patna. A planetarium is being constructed in Darbhanga at a cost of Rs. 164.00 crore. Under e-governance programme, the department provides accessibility, transparency and accountability in allotment of government quarters, and it also includes through online application for renting Samrat Ashok Convention Centre, Adhiveshan Bhavan and Majharul Haq Auditorium. Different building projects and schemes are being monitored through Project Management Information System (PMIS).

Bihar State Building Construction Corporation Limited (BSBCCL)

The State Government has established Bihar State Building Construction Corporation Limited in 2008, as a Public Sector Undertaking. Presently, BSBCCL has nine units in all over Bihar. It has executed 1647 projects till date, worth of Rs. 5076.57 crore. The Corporation has witnessed considerable growth in recent years, and has also been generating profit. The net profit has fluctuated over the years. It was the minimum in 2015-16 (Rs. 5.51 crore) and maximum in 2014-15 (Rs. 26.78 crore). Table 6.18 presents the summary of financial management of the Corporation and its expenditure. It may also be noted here that the Corporation spends a substantial amount for its CSR (Corporate Social Responsibility) initiative each year. In 2017-18, the CSR amount was Rs. 40.14 lakh.

Table 6.18 : Status of Financial Management and Expenditure on Projects of BSBCCL (2013-14 to 2017-18)

Year	No. of Projects	Expenditure (Rs. crore)	Turnover (Rs. crore)	Total Revenue (Rs. crore)	Administrative Expenditure (Rs. crore)	Gross Profit (Rs. crore)	Net Profit (Rs. crore)	CSR Reserve (Rs. lakh)
2013-14	747	300.50	28.76	41.27	14.12	14.59	9.43	19.89
2014-15	128	637.49	58.18	72.51	17.24	41.21	26.78	25.55
2015-16	87	445.82	27.34	38.82	18.47	8.30	5.51	64.10
2016-17	400	568.76	39.26	57.47	14.02	28.59	18.63	52.06
2017-18	254	602.16	40.93	67.39	20.12	23.32	14.95	40.14

Source : Bihar State Building Construction Corporation Limited.

6.10 Telecom Network

Tele-communication is an emerging sector at the global level which creates ample opportunity for fast communication and exchange of information. This sector is also important because of its expanding reach, widening network and adoption of tools that enhances digitisation of systems,

and interactions across the key economic sectors, including agriculture. India is presently the world's second largest telecommunications market, with 118 crore subscribers. In Bihar also, the telecom is one of the fastest growing sectors. The state-wise tele-density (number of telephones per hundred of population) is given in Table 6.19. The telecom sector has registered a tremendous growth and tele-density has been increasing rapidly over the years in both Bihar and other states. However, the increasing trend was slightly reversed in 2019, both for Bihar and India as a whole. In 2019, Bihar is at the second lowest position among major states of India in terms of rural tele-density (46 connections) and at the eighth position in terms of urban tele-density (149 connections). The highest rural tele-density was registered by Tamil Nadu (86 connections) and the highest urban tele-density by Kerala (302 connection). The national average was — 57 connections (rural), 160 connections (urban) and 90 connections (overall).

Table 6.19 : Tele-density of Major Indian States (2016 to 2019)

State	2016			2017			2018			2019		
	Rural	Urban	All	Rural	Urban	All	Rural	Urban	All	Rural	Urban	All
Andhra Pradesh	51	177	86	60	192	97	61	189	53	65	181	98
Bihar	36	166	54	41	187	61	44	221	63	46	149	60
Gujarat	67	145	100	76	166	114	76	161	112	71	155	107
Haryana	65	123	86	65	136	91	69	211	121	71	142	98
Karnataka	53	179	102	59	198	113	62	182	109	69	172	110
Kerala	62	220	102	70	248	115	75	260	122	67	302	126
Madhya Pradesh	42	124	64	44	129	67	44	124	67	44	137	70
Maharashtra	65	135	99	70	151	110	74	144	108	71	144	107
Odisha	50	160	69	58	184	81	62	164	80	60	145	76
Punjab	72	150	106	81	166	118	81	180	123	78	182	125
Rajasthan	58	162	83	62	187	92	60	171	87	58	172	85
Tamil Nadu	85	140	118	94	151	128	105	155	136	86	135	117
Uttar Pradesh	42	145	66	46	168	74	46	164	73	49	133	69
West Bengal	53	145	80	62	169	93	63	159	91	58	159	87
All-India	51	154	83	57	172	93	59	166	93	57	160	90

Source : Telecom Regulatory Authority of India (TRAI)

The Bharat Sanchar Nigam Limited (BSNL) is a Public Sector Undertaking, owned by the Central Government, which provides telecom services across the country, particularly in the rural areas. The services also include tribal and left-wing extremism affected areas. In Bihar, BSNL network covers 16.0 percent of the total geographical area, 84.7 percent of the population, 68.5 percent of villages and all the routes of NH, SH and railways. A summary of telecom demography of the state is presented in Table 6.20. In recent years, BSNL has taken many strides — launch of Wi-fi hotspot and next generation network exchange in 2017, WINGS (Wi-fi Internet Telephony Connections)

in 2018, and 4G Base Transceiver Station (BTS) in 2019. The status of telecom infrastructure of BSNL in Bihar is given in Table 6.21.

Table 6.20 : Telecom Demography of BSNL in Bihar (September 2019)

Item	Total	% Coverage
Area (sq. km)	94613	66.0
Population (Crore)	10.38	84.7
Revenue District (nos.)	38	100.0
Revenue Sub-Division (nos.)	101	100.0
Block HQ (nos.)	534	100.0
Total Villages (nos.)	44874	68.5
National Highway (km)	3734	100.0
State Highway (km)	4857	100.0
Total Railway Route (km)	3515	100.0

Source : BSNL, Patna

Table 6.21 : Trends of expansion of BSNL Network (2014-15 to 2019-20)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*	
Total no. of BSNL Connections (in lakh)	21.69	25.14	30.32	32.64	33.58	36.38	
No. of Mobile GSM Connections (in lakh)	18.61	22.36	28.76	31.27	32.38	35.34	
Total Wireline connections (in Lakh)	1.95	1.66	1.56	1.37	1.20	1.04	
WINGS (Wifi Internet Telephony) Connections	w.e.f. July-2018				1130	12.56	
Wireless Internet Connections (in Lakh)	21.50	23.48	28.76	31.27	32.38	35.34	
Total No. of FTTH (Fiber-to-the Home) High Speed Broadband connection	215	519	869	5147	6005	7573	
No. of Wireline Broadband Connections (in Lakh)	0.59	0.59	0.59	0.52	0.43	0.27	
No. of GSM Mobile BTSs	2G/3G	3256	3734	3875	4562	4874	4436
	4G	4G Services w.e.f. 12.03.2019			34	323	
No. of Wi-fi Hotspots	w.e.f. 2017		6	10	108	729	
No. of Next Generation Network (NGN) Exchanges	w.e.f. 2017		5	16	177	367	
No. of OLTs for High-speed FTTH Broadband Connections (including Bharat Net Phase-1)	39	80	99	410	410	410	
Total No. of Landline Telephone Exchanges	1196	1196	1196	1196	1118	1055	
No. of Wireline Broadband DSLAMs	1160	1111	896	896	850	850	

Source : BSNL, Patna

The Department of Telecommunication has taken several steps to strengthen the telecom infrastructure and network at the national level. Bihar is one of the beneficiaries of such projects:

Special Provision for Left Wing Extremism-Affected Areas : The Central Government has identified 2335 locations in 10 Left Wing Extremism (LWE) affected states (Andhra Pradesh,

Bihar, Chhattisgarh, Jharkhand, Maharashtra, Madhya Pradesh, Odisha, Telangana, Uttar Pradesh and West Bengal) and earmarked an outlay of Rs. 4781 crore for strengthening BSNL network in those locations. Bihar had 250 sites in different LWE affected districts. As part of LWE Phase-2, the Central Government has decided to install additional 4072 mobile towers at different locations in 96 districts in 10 states, out of which 8 districts are in Bihar. The estimated cost of this project is Rs. 7330 crore.

SAMPANN : A System for Accounting and Management of Pension, and a new software for direct disbursement of Pension to BSNL and Telecom Department retirees have been developed. This will ensure Comprehensive Pension Management System (CPMS) and it has been rolled out at 12 offices of Controller of Communication Accounts (CCA) — Uttar Pradesh, Gujarat, Kerala, Rajasthan, Bihar, Madhya Pradesh, Andhra Pradesh, Tamil Nadu, West Bengal, Jammu and Kashmir and Delhi. The rest of the CCA offices in other states are likely to be included in due course. SAMPANN provides the following benefits to the pensioners — (i) A single-window system for complete pension process, avoiding the complexities, (ii) Pensioners to be provided with a login, for tracking the pension status and the related processes, (iii) Direct disbursement of pension on timely basis without any intervention, (iv) Effective and Quick processing of pension arrears and pension revision cases. Till now, 2092 pensioners have been benefitted and an amount of Rs 296.51 crore has been disbursed as pension. The migration of bank data of old pensioners to CPMS is under process.

USOF Wi-fi Hotspot : The Central Government has planned to set up 25,000 public Wi-fi hotspots at rural telephone exchanges of BSNL. This shall provide broadband internet access over Wi-Fi, leveraging BSNL backhaul. A total of 895 Rural Telephone Exchanges is planned under USOF project, out of which 693 have already been commissioned and 202 more rural exchanges will be provided with Wi-fi services in 2019-20.

Bharat NET Project : The State Government has laid emphasis on growth of internet and broadband, as a part of the Digital India campaign. This project is implemented through the BSNL and 5986 Gram Panchayats (GPs) are to be connected with Optical Fibre Connection (OFC) for high-speed broadband connectivity. In addition, 226 GPs under Bharat Net project have been provided with Wi-fi Choupal services.

Crime and Criminal Tracking Network and Systems (CCTNS) Project : The connectivity under CCTNS project will ensure RF (Radio Frequency) to 980 Police Stations in different districts of Bihar. BSNL is required to provide network for 569 police stations, of which work in 400 police stations is already complete.

6.11 Postal Network

The postal network of India is the largest in the world, with altogether 1.55 lakh post offices. It provides many services, including mail, banking, insurance, money transfer and retail services. A total of 9084 post offices were in existence in Bihar in March, 2018 — 8625 (94.9 percent) being in rural and 459 (5.1 percent) in urban areas. In terms of share in the all-India postal network, Bihar's share stands at 5.8 percent, compared to the population share of 8.6 percent. In terms of letter boxes, the top three states are — Uttar Pradesh, Maharashtra, and Tamil Nadu, accounting for 29 percent of the letter boxes. Bihar accounted for 4.6 percent of the total number of letter boxes in the country. (Table 6.22).

Table 6.22 : Postal Network in Major States of India (March 31, 2018)

States	Post Offices (in Nos.)			Letter Box (in Nos.)		
	Rural	Urban	Total	Rural	Urban	Total
Andhra Pradesh	9707 (92.5)	783 (7.5)	10490 (100.0)	24846 (85.4)	4233 (14.6)	29079 (100.0)
Bihar	8625 (94.9)	459 (5.1)	9084 (100.0)	19472 (86.2)	3111 (13.8)	22583 (100.0)
Chhattisgarh	2898 (90.9)	289 (9.1)	3187 (100.0)	12219 (80.3)	2991 (19.7)	15210 (100.0)
Gujarat	8167 (91.3)	781 (8.7)	8948 (100.0)	19764 (81.9)	4381 (18.1)	24145 (100.0)
Haryana	2318 (86.1)	375 (13.9)	2693 (100.0)	5403 (81.2)	1250 (18.8)	6653 (100.0)
Jharkhand	3190 (92.2)	270 (7.8)	3460 (100.0)	8533 (89.2)	1028 (10.8)	9561 (100.0)
Karnataka	8624 (89.2)	1039 (10.8)	9663 (100.0)	23951 (80.2)	5922 (19.8)	29873 (100.0)
Kerala	4181 (82.6)	883 (17.4)	5064 (100.0)	11315 (76.6)	3463 (23.4)	14778 (100.0)
Madhya Pradesh	7473 (90.3)	807 (9.7)	8280 (100.0)	34122 (88.8)	4287 (11.2)	38409 (100.0)
Maharashtra	11584 (90)	1286 (10)	12870 (100.0)	36468 (81.6)	8242 (18.4)	44710 (100.0)
Odisha	7615 (92.7)	600 (7.3)	8215 (100.0)	16909 (87.2)	2491 (12.8)	19400 (100.0)
Punjab	3417 (88.3)	453 (11.7)	3870 (100.0)	12044 (81.7)	2705 (18.3)	14749 (100.0)
Rajasthan	9679 (93.9)	632 (6.1)	10311 (100.0)	23690 (86.8)	3613 (13.2)	27303 (100.0)
Tamil Nadu	10283 (84.7)	1855 (15.3)	12138 (100.0)	30587 (76.4)	9427 (23.6)	40014 (100.0)
Uttar Pradesh	15747 (89.1)	1924 (10.9)	17671 (100.0)	45224 (87)	6785 (13)	52009 (100.0)
West Bengal	7940 (87.5)	1137 (12.5)	9077 (100.0)	22615 (83.7)	4416 (16.3)	27031 (100.0)
All States	139882 (89.9)	15649 (10.1)	155531 (100.0)	394004 (83.6)	77439 (16.4)	471443 (100.0)

Note : Figures in parenthesis for rural and urban represent share from total and state-wise from all-India

Source : Annual Report 2018-19, Department of Posts, India

Many financial services are provided through the vast postal network. These services include deposit, investments, Monthly Income Scheme (MIS) and payments under other government financial schemes (social benefit payments, MGNREGA payments, and social security pension schemes). Table 6.23 presents the details of different types of accounts and their outstanding balances in major states of India. There are 272 lakh account holders in Post Office Bank (POB) in Bihar, which constituted 7.3 percent of the all-India total. In terms of total outstanding balance, Bihar accounts for Rs. 92,810 crore, constituting 15.5 percent of all-India total.

Table 6.23 : Summary of Financial Services of Post Office in India (March 31, 2018)

State	No. of Accounts (lakh)					Outstanding Balance (Rs. in crore)				
	Deposits	Investment	MIS	Sukanya/Mahila Samridhi Account	Total	Deposits	Investment	MIS	Sukanya Mahila Samridhi Account	Total
Andhra Pradesh	365	1	5	6	376	204	71	15	467	757
Bihar	252	1	14	5	272	42410	3770	45768	863	92810
Chhattisgarh	19	2	4	2	27	13326	1966	9431	1996	26720
Gujarat	54	1	3	4	62	21491	4141	9911	3112	38656
Haryana	51	0	2	2	55	720	124	328	84	1255
Jharkhand	129	0	3	4	136	11324	4277	5563	3039	24203
Karnataka	265	5	12	9	292	13705	1501	3723	657	19586
Kerala	236	1	4	5	246	10135	491	3419	691	14735
Madhya Pradesh	23	0	0	1	24	13800	4640	5236	844	24520
Maharashtra	143	0	3	4	150	17608	7850	5864	766	32087
Odisha	167	2	5	6	179	12749	783	2320	928	16781
Punjab	305	3	5	15	328	21303	7352	13446	594	42696
Rajasthan	334	2	12	13	361	8421	1206	2785	414	12826
Tamil Nadu	230	2	47	7	285	3269	222	834	230	4556
Uttar Pradesh	39	0	1	3	44	23034	9811	25973	1999	60816
West Bengal	58	0	1	3	62	5247	750	1762	254	8013
Total	3412	28	154	118	3712	319616	73084	181688	22906	597295

Note : Deposits include saving accounts, recurring deposits, term deposits and Senior citizen's deposits and Investment includes Public Provident Fund and National Savings Scheme

Source : Annual Report 2018-19, Department of Posts, Government of India

Passport Services : In order to extend passport services to the citizens in remote areas, the selected Head Post Offices (HPOs) have been authorised as Post Office Passport Seva Kendra (POPSK).

E-Commerce : The Department of Posts has launched the e-Commerce Portal on December 14, 2018 in order to strengthen the rural economy. This will promote digital and physical connectivity to facilitate a digital platform and e-market place for sale of Departmental and Third Party Products.

DARPAN : Under the Digital Advancement of Rural Post Office for A New India (DARPAN) Project, a SIM based hand held device has been provided to more than 1.29 lakh Branch Post offices all over the country for carrying out online postal and financial transactions. Through DARPAN, the following transactions are being done — deposit and withdrawal of money on core banking system, disbursement of benefits under MGNREGS and other social sector payment schemes, booking of Registered and Speed Post articles, booking of Money Orders, and deposits of Postal Life Insurance (PLI)/ Rural Postal Life Insurance (RPLI) premium. All these transactions will give a boost to digital transactions in the remote rural areas.

APPENDIX

Table A 6.1 : District-wise National Highway Network in Bihar (in km) (2013 to 2020)

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 (Upto Sept.)
Patna	395	395	395	395	395	395	395
Nalanda	177	177	177	177	177	177	177
Bhojpur	85	85	85	85	85	85	85
Buxar	55	55	55	55	81	81	81
Rohtas	145	145	145	145	183	183	183
Kaimur	52	52	99	99	99	99	99
Gaya	120	120	120	120	155	155	155
Jehanabad							
Arwal	134	134	134	134	134	134	134
Nawada	84	84	84	84	84	84	84
Aurangabad	137	137	137	137	186	186	186
Saran	181	181	181	181	227	227	227
Siwan	54	54	54	54	131	131	131
Gopalganj	96	96	96	96	96	96	96
W. Champaran	112	112	112	112	112	112	112
E. Champaran	94	94	94	94	126	126	126
Muzaffarpur	258	259	259	259	259	259	259
Sitamarhi	136	168	168	168	168	168	168
Sheohar	22	22	22	22	22	22	22
Vaishali	128	128	128	128	128	128	128
Darbhanga	50	50	50	50	50	50	50
Madhubani	208	208	236	236	236	236	236
Samastipur	66	66	66	66	66	66	66
Begusarai	96	96	96	102	102	102	102
Munger	97	73	73	85	85	85	85
Sheikhpura	12	12	46	46	46	46	46
Lakhisarai	45	45	51	51	51	51	51
Jamui	88	112	197	197	197	197	197
Khagaria	92	92	92	92	92	92	92
Bhagalpur	146	146	146	146	146	146	146
Banka	-	11	86	86	86	86	86
Saharsa	79	93	93	93	93	93	93
Supaul	205	216	216	216	216	216	216
Madhepura	109	109	109	109	109	109	109
Purnea	120	116	116	116	116	116	116
Kishanganj	68	68	68	68	68	68	68
Araria	154	154	154	154	154	154	154
Katihar	102	158	158	165	158	158	158
Bihar	4201	4321	4595	4621	4917	4917	4917

Source : Road Construction Department, GoB

Table A 6.2 : District-wise State Highway Network in Bihar (in km) (2013 to 2020)

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 (Upto Sept.)
Patna	162	199	204	208	208	208	208
Nalanda	172	172	186	192	192	192	192
Bhojpur	153	153	177	167	167	167	167
Buxar	79	79	78	78	52	52	52
Rohtas	235	235	231	231	193	193	193
Kaimur	99	99	91	85	85	85	85
Gaya	219	219	247	240	210	210	210
Jehanabad			33	33	33	33	33
Arwal			33	39	39	39	39
Nawada	170	170	185	212	186	186	186
Aurangabad	151	151	157	158	124	124	124
Saran	202	202	196	202	166	166	166
Siwan	159	159	157	156	86	86	86
Gopalganj	82	53	56	53	53	53	53
W. Champaran	102	102	115	115	115	115	115
E. Champaran	144	144	131	131	128	128	128
Muzaffarpur	70	70	76	76	76	76	76
Sitamarhi	49	49	94	94	94	94	94
Sheohar	14	14	12	12	12	12	12
Vaishali	151	151	113	113	113	113	113
Darbhangha	198	198	224	224	224	224	224
Madhubani	132	132	99	98	98	98	98
Samastipur	222	222	194	194	194	194	194
Begusarai	42	42	43	43	43	43	43
Munger	11	35	34	34	34	34	34
Sheikhpura	53	53	22	22	22	22	22
Lakhisarai	59	59	49	49	49	49	49
Jamui	133	109	63	63	63	63	63
Khagaria	15	15	18	16	21	21	21
Bhagalpur	81	81	72	72	72	72	72
Banka	215	204	169	169	169	169	169
Saharsa	135	121	97	81	91	91	91
Supaul	150	139	133	134	134	134	134
Madhepura	99	99	100	99	99	99	99
Purnea	161	149	141	141	141	141	141
Kishanganj	49	50	49	49	49	49	49
Araria	95	94	69	69	69	69	69
Katihar	116	100	103	103	103	103	103
Bihar	4483	4426	4253	4253	4006	4006	4006

Source : Road Construction Department, GoB

Table A 6.3 : District-wise Major District Road Network in Bihar (in km) (2013 to 2020)

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 (Upto Sept.)
Patna	458	496	565	562	562	763	817
Nalanda	318	390	445	448	448	435	466
Bhojpur	258	250	282	282	282	284	286
Buxar	126	127	127	127	127	141	162
Rohtas	398	415	366	383	404	429	439
Kaimur	233	239	264	269	269	311	326
Gaya	351	601	628	624	627	855	878
Jehanabad	203	280	289	289	289	287	287
Arwal			69	65	65	65	77
Nawada	137	158	157	172	151	171	183
Aurangabad	259	245	256	256	256	486	486
Saran	262	219	200	360	365	398	400
Siwan	329	250	292	306	306	307	323
Gopalganj	312	322	353	353	353	367	378
W. Champaran	317	299	294	293	302	367	392
E. Champaran	310	330	409	474	462	461	461
Muzaffarpur	394	431	456	467	467	566	596
Sitamarhi	222	287	214	214	214	250	323
Sheohar	33	33	101	101	101	101	43
Vaishali	177	177	179	343	347	345	423
Darbhanga	403	373	412	472	475	513	718
Madhubani	315	371	381	380	380	418	418
Samastipur	321	385	411	429	429	526	604
Begusarai	202	247	246	209	209	251	251
Munger	45	53	46	46	46	82	91
Sheikhpura	109	127	137	137	137	141	169
Lakhisarai	58	87	91	93	93	114	119
Jamui	184	198	208	208	239	329	327
Khagaria	129	212	243	243	243	239	239
Bhagalpur	253	265	264	264	280	277	277
Banka	264	206	200	200	200	213	214
Saharsa	358	332	279	279	279	286	317
Supaul	470	547	498	505	505	539	539
Madhepura	74	87	103	103	103	113	126
Purnea	269	257	227	227	227	344	344
Kishanganj	234	286	290	221	221	265	265
Araria	252	241	376	376	408	482	482
Katihar	364	304	275	275	275	253	253
Bihar	9401	10128	10634	11054	11145	12774	13499

Source : Road Construction Department, GoB

Table A 6.4 : District-wise Rural Road Network in Bihar (in km) (2014 to 2020)

District	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 (upto Sept.)		Total Length
	Paved	Paved	Paved	Paved	Paved	Paved	Unpaved	
Patna	1670.15	1874.77	2382.55	2606.23	2876.13	3177.20	492.17	3669.37
Nalanda	1539.03	1712.25	1833.29	2127.37	2322.60	2617.79	706.78	3324.57
Bhojpur	1286.95	1429.29	1622.39	1798.30	1966.11	2083.77	398.20	2481.96
Buxar	1129.04	1252.03	1418.72	1692.90	1858.80	1786.55	413.04	2199.59
Rohtas	1487.52	1786.46	2375.44	2959.76	3255.11	2751.16	626.40	3377.56
Kaimur	1424.25	1451.39	1533.56	2170.16	2378.53	2095.96	1056.66	3152.62
Gaya	2303.07	2686.60	3047.17	3356.88	3725.12	4484.96	859.82	5344.78
Jehanabad	550.35	617.78	824.04	1231.13	1337.54	1236.22	178.87	1415.08
Arwal	230.37	258.60	297.13	379.52	423.30	378.94	234.83	613.77
Nawada	1105.11	1240.51	1425.34	1920.42	2162.92	1933.36	498.71	2432.08
Aurangabad	1615.34	2210.00	2654.51	2917.62	3178.29	3543.60	619.70	4163.30
Saran	2373.48	2532.24	3027.18	3366.44	3707.25	3599.09	984.00	4583.08
Siwan	1743.91	1825.55	1983.32	2135.82	2385.65	2599.78	990.96	3590.74
Gopalganj	1454.13	1632.29	1989.71	2093.67	2377.60	2276.85	476.80	2753.64
W. Champaran	2134.84	2132.35	3135.38	3278.80	3570.21	3217.45	1273.51	4490.96
E. Champaran	2958.52	3422.35	3892.55	4003.92	4458.67	4543.57	934.87	5478.44
Muzaffarpur	2880.31	3481.91	3980.84	4136.23	4515.03	4332.08	1789.88	6121.96
Sitamarhi	1581.95	1729.77	2270.58	2351.03	2631.67	2105.96	850.27	2956.23
Sheohar	362.70	407.14	467.80	514.06	576.17	594.82	311.19	906.01
Vaishali	2287.21	2435.40	2569.83	2669.00	2930.96	3172.50	1070.73	4243.22
Darbhanga	2247.49	2499.51	2457.84	2576.41	2836.67	3146.23	1136.96	4283.19
Madhubani	3012.76	3209.82	3464.55	3583.50	3925.20	4512.05	2427.17	6939.22
Samastipur	2245.43	2388.51	2593.61	2925.57	3244.24	3437.54	651.10	4088.63
Begusarai	957.93	1075.29	1235.50	1352.05	1473.27	1420.27	337.02	1757.29
Munger	363.09	407.58	468.31	559.73	657.73	819.93	213.68	1033.61
Sheikhpura	488.43	548.28	560.29	565.96	655.99	658.60	864.77	1523.36
Lakhisarai	372.26	417.87	480.13	520.84	627.44	637.56	253.47	891.03
Jamui	1284.42	1558.48	1885.05	2314.40	2536.31	2588.81	414.73	3003.53
Khagaria	414.01	495.40	563.24	660.79	731.14	940.71	390.28	1330.99
Bhagalpur	1231.14	1498.66	1702.10	1832.88	2006.38	2054.01	371.65	2425.66
Banka	1608.35	1782.06	2401.06	2674.26	2951.36	2714.41	390.10	3104.51
Saharsa	1050.65	1078.01	1084.17	1129.13	1311.67	1438.07	1226.56	2664.63
Supaul	1233.93	1314.41	1361.25	1459.52	1635.51	2021.17	687.50	2708.67
Madhepura	1191.88	1368.56	1383.75	1458.77	1645.27	2003.42	1887.06	3890.48
Purnea	2298.21	2696.47	3078.37	3257.29	3558.65	3488.85	1344.76	4833.61
Kishanganj	1291.35	1698.28	1931.45	1889.81	2111.70	2134.83	848.75	2983.58
Araria	2323.53	2359.49	2616.68	2765.60	3070.53	3121.74	1370.36	4492.09
Katihar	1655.36	1904.16	2019.01	2101.92	2329.39	2533.89	1335.89	3869.78
Bihar	57388.44	64419.49	74017.67	81337.67	89946.11	92203.69	30919.17	123122.85

Source : Rural Works Department, GoB

Table A 6.5 : District-wise Number of Registered Vehicles in Bihar (2018-19)

District	Truck	Bus	Car	Taxi	Jeep	Three Wheeler	Two Wheeler	Tractor	Trailer	Other	Total
Patna	4262	415	22674	1866	5030	5124	137320	868	523	1560	179642
Nalanda	503	76	478	138	293	694	23354	1530	1007	382	28455
Bhojpur	552	52	514	167	380	1156	31975	1003	865	—	36664
Buxar	162	13	269	38	188	480	11032	360	303	—	12845
Rohtas	848	81	893	105	92	985	22766	911	655	520	27856
Kaimur	155	37	155	48	111	244	12241	1142	615	1	14749
Gaya	996	139	1864	183	448	2589	31261	1606	886	—	39972
Jehanabad	187	68	85	16	1	518	6158	793	330	—	8156
Arwal	26	1	33		1	51	2768	19	18	748	3665
Nawada	167	31	196	62	167	202	12192	1209	1083	1086	16395
Aurangabad	516	58	647	103	153	1540	14094	1145	1056	—	19312
Saran	400	24	602	119	467	515	29411	911	238	167	32854
Siwan	665	39	662	244	648	734	28479	1389	27	4	32891
Gopalganj	255	26	801	47	130	137	21646	897	30	79	24048
W. Champaran	1259	10	544	5	147	787	30636	592	22	13	34015
E. Champaran	623	46	1311	214	361	1175	38047	1632	2	264	43675
Muzaffarpur	4810	1119	3457	777	-	1989	75019	553	73	—	87797
Sitamarhi	143	21	145	41	124	992	28817	1198	156	—	31637
Sheohar	5		18	11	15	20	2534	64	6	2	2675
Vaishali	555	61	4435	135	751	807	35520	896	488	343	43991
Darbhanga	824	18	1550	403	693	2591	32791	691	22	351	39934
Madhubani	192	17	227	122	360	848	27300	1623	415	18	31122
Samastipur	129	14	263	38	18	1226	38755	1092	490	210	42235
Begusarai	573	54	1178	174	139	1134	22997	858	541	161	27809
Munger	118		82	87	70	320	9486	2	2	488	10655
Sheikhpura	119	8	35	26	28	79	2802	398	246	—	3741
Lakhisarai	274	6	201	48	8	127	4283	398	182	5	5532
Jamui	101	6	33	24	58	549	9250	588	536	12	11157
Khagaria	69	3	53	31	159	361	9729	372	317	812	11906
Bhagalpur	685	19	1347	199	311	1208	13301	315	228	498	18111
Banka	164	19	68	27	32	200	6830	242	218	1081	8881
Saharsa	134	20	300	47	119	587	12549	924	178	—	14858
Supaul	90	216	261	99	14	99	19121	1338	465	17	21720
Madhepura	55	15	338	10	-	935	16358	1172	354	95	19332
Purnea	2026	79	2776	327	1005	4207	34354	893	160	2343	48170
Kishanganj	45	5	551	18	4	688	26447	624	39	101	28522
Araria	24	11	551	10	123	746	17125	1279	650	12	20531
Katihar	62	6	268	31	20	451	30037	1156	474	60	32565
Bihar	22773	2833	49865	6040	12668	37095	928785	32683	13900	11433	1118075

Source : Transport Department, GoB

CHAPTER - VII

ENERGY SECTOR

I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that. — Thomas Edison

Abstract

Availability of energy is a prerequisite for economic growth and social progress in any society. This chapter presents the details of the progress made in the energy sector in the state. In the recent past, Bihar has progressed immensely in terms of availability of power across the state. For instance, per capita electricity consumption has increased by 114 percent between 2012-13 and 2018-19. Given the anticipated increase in power demand, the State Government has taken various short-term and long-term measures such as an addition to the capacity, improvement in operational efficiency, rehabilitation and extension of distribution network, etc. The improvement in access to electricity is manifested through an increase in the sales of electricity and a consequent increase in revenue collections. To prioritise renewable energy power uses, the State Government has created an institution called Bihar Renewable Energy Development Agency (BREDA), primarily engaged in the execution of various projects on solar pumps and solar installation under CAPEX (Capital Expenditure) mode. BREDA also carry out various energy efficiency schemes in Bihar.

Energy is a vital necessity for the overall development of any country or region. Thus, ensuring the supply of adequate and reliable power is one of the most important agendas of any government. In this background, Bihar has unveiled an ambitious plan to provide electricity to all. This is because power is a requirement for all non-agricultural as well as agricultural activities. Economy of Bihar has been growing at a fast rate in the recent years and, as such, the development of energy sector is of utmost importance to ensure that the present growth momentum is maintained in the coming years. Apart from production activities, power is also needed for the households to ensure amenities that make life more comfortable and enjoyable. Indeed, under 'Saat Nishchay' of the State Government, indicating its seven basic development commitments, 'Har Ghar Bijli' (supply of power to all households) is the third component. To attain the objective of universal household electrification under this component, power

companies in Bihar have been able to provide electricity to all 39,073 villages by the deadline, December, 2017 and to all 1.06 lakh rural habitations by April, 2018. Further, the target of providing electricity connection to all willing 1.40 crore households has been achieved in October, 2018.

7.1 Availability of Power

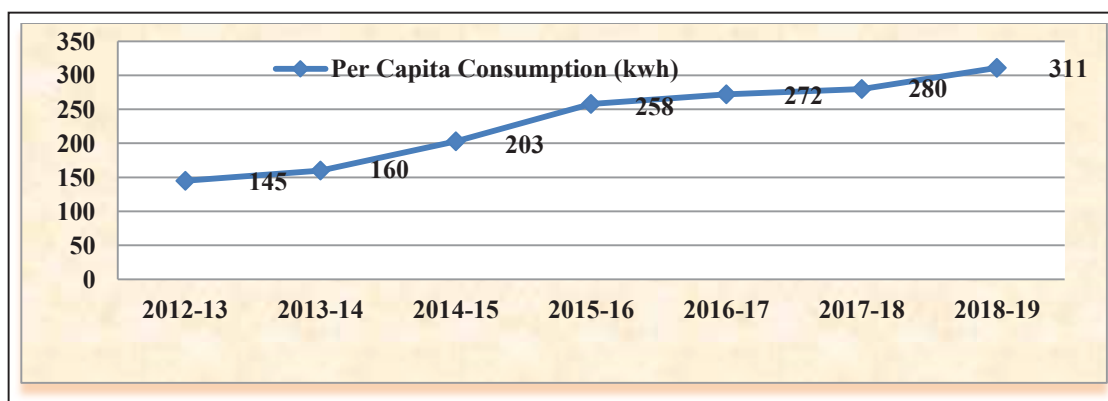
Bihar has taken various measures in the field of energy for capacity addition, improving Transmission & Distribution (T & D) network and energy conservation to improve supply position. Consequently, there was a significant improvement in projected peak demand in Bihar from 2650 MW in 2012-13 to 5300 MW in 2018-19, implying a growth of around 100 percent in six years (Table 7.1). The peak demand met again had a growth of around 185 percent to reach 5139 MW during 2018-19, from 1802 MW in 2012-13. As is apparent from the Table, the peak deficit in power has been around 32 percent in 2012-13, but it substantially decreased to 3 percent in 2018-19. The availability of power has increased from an average of 6-8 hours to 20-22 hours in rural areas and from 10-12 hours to 22-24 hours in urban areas. The per capita consumption in the state has risen from 145 kwh in 2012-13 to 311 kwh in 2018-19, implying a growth of 114 percent in six years.

Table 7.1 : Power Scenario (2012-13 to 2018-19)

Year	Peak Demand Projection (MW)	Peak Demand Met (MW)	Peak Deficit/ Surplus (MW)	Peak Deficit/ Surplus (%)	Energy Requirement Projection (MU)	Energy Availability (MU)	Energy Deficit/ Surplus (MU)	Energy Deficit/ Surplus (%)	Per Capita Consumption (kwh)
2012-13	2650	1802	-848	-32.0	15321	13267	-2054	-13.4	145
2013-14	3150	2335	-815	-25.9	18212	15045	-3464	-19.0	160
2014-15	3500	2831	-669	-19.1	22226	18731	-3495	-15.7	203
2015-16	4112	3459	-653	-15.6	25550	21679	-3871	-15.2	258
2016-17	4405	3769	-636	-14.4	28245	23978	-4267	-15.1	272
2017-18	4965	4535	-430	-9.4	30095	26788	-3307	-12.3	280
2018-19	5300	5139	-161	-3.0	32257	29472	-2785	-8.6	311

Source : Department of Energy

Chart 7.1 : Per capita Energy Consumption from 2012-13 to 2018-19



There exists considerable variation across the districts in terms of power consumption in Bihar (Table 7.2). The total power consumption of 15,375 MU in 2014-15 increased to 26,800 MU in

Table 7.2 : District-wise Power Consumption (2014-15 to 2018-19)

Districts	Consumption (MU)					CAGR (2014-19)
	2014-15	2015-16	2016-17	2017-18	2018-19	
Patna	3959	4197	4713	4965	5236	7.2
Nalanda	672	813	940	1008	1128	13.8
Bhojpur	380	494	601	715	756	18.6
Buxar	276	351	439	452	483	15.0
Rohtas	625	785	842	1004	1099	15.1
Kaimur	358	432	546	712	715	18.9
Gaya	1003	1214	1365	1522	1633	13.0
Jehanabad	216	273	337	363	428	18.6
Arwal	69	95	120	135	166	24.5
Nawada	161	286	374	466	559	36.5
Aurangabad	321	497	759	877	908	29.7
Saran	459	605	661	740	877	17.6
Siwan	233	291	350	497	641	28.8
Gopalganj	195	294	342	428	492	26.0
W. Champaran	260	402	438	543	615	24.0
E. Champaran	341	428	466	654	828	24.8
Muzaffarpur	735	916	937	986	1202	13.1
Sitamarhi	201	270	295	409	480	24.3
Sheohar	33	50	59	76	86	27.3
Vaishali	444	586	636	640	733	13.4
Darbhanga	381	482	522	570	635	13.6
Madhubani	325	407	469	512	565	14.8
Samastipur	343	453	501	572	687	19.0
Begusarai	370	452	488	547	603	13.0
Munger	255	310	368	382	385	10.8
Sheikhpura	114	136	165	176	190	13.6
Lakhisarai	171	213	300	327	335	18.3
Jamui	167	191	278	328	423	26.2
Khagaria	134	180	194	218	256	17.6
Bhagalpur	628	714	812	842	901	9.4
Banka	161	215	308	296	320	18.7
Saharsa	185	282	309	300	312	14.0
Supaul	185	264	284	294	320	14.7
Madhepura	165	235	255	283	299	16.0
Purnea	358	382	427	484	549	11.3
Kishanganj	143	188	197	215	212	10.3
Araria	161	207	269	306	334	20.0
Katihar	188	255	276	345	409	21.5
Bihar	15375	18845	21642	24189	26800	14.9

Source : Department of Energy, GoB

2018-19, implying a growth of over 74 percent in four years. In 2018-19, three most prosperous districts in terms of power consumption were — Patna (5236 MU), Gaya (1633 MU) and Nalanda (1128 MU). At the other end, three bottom districts were — Sheikhpura (190 MU), Arwal (166 MU) and Sheohar (86 MU). The three districts which have recorded the highest growth rate of power consumption are — Nawada (36.5 percent), Aurangabad (29.7 percent) and Siwan (28.8 percent)

7.2 Projection of Power Requirement

As mentioned before, Bihar has unveiled an ambitious plan to provide adequate and reliable electricity to all. Access to electricity on 24×7 basis to all the citizens is indeed synonymous with social equality. Thus, as mentioned above, the State Government-made ‘Har Ghar Bijli’ resolve targeted to achieve it by December, 2018. However, as indicated earlier, this target has already been achieved by October, 2018, which is two months ahead of the target. As of now, electric connection has been provided to all willing households in the state. In the next phase, connection is being provided to agriculture pump sets, both new as well as existing pumpsets running on diesel. This has been taken up in a mission mode and the target for its completion has been set at March, 2020.

There will be a quantum jump in power demand in the state in the coming years, mainly due to large scale release of service connection in rural areas towards full electrification, substantial increase in agricultural consumers, rise in demand of existing consumers (because of widespread use of electrical gadgets), and industrialisation of the state. Table 7.3 presents the estimated annual energy requirement for all consumers for the period 2019-20 to 2021-22.

Table 7.3 : Annual Energy Requirement for Rural and Urban Consumers (2019-20 to 2021-22)

(Figures in MU)

Year	Category of Consumers					
	Existing Electrified Households	New Households	Total Domestic Requirement	Consumers other than Domestic	New Agricultural Connections	Total
2019-20	12558	1396	13954	8173	966	23093
2020-21	15245	1694	16939	8875	1160	26974
2021-22	18915	2105	21020	9852	1431	32303

Source : Department of Energy, GoB

Table 7.4 shows the projected energy requirement at the state periphery, considering distribution losses and transmission loss in intra-state trajectory. The expected power demand of Bihar by 2021-22 shall be of the order of 6900 MW, with an annual energy requirement of 39,841 MU.

Table 7.4 : Annual Energy and Peak Demand Requirement at State Periphery (2019-20 to 2021-22)

Indicators	2019-20	2020-21	2021-22
Energy requirement as per demand projections (MU)	23093	26974	32303
Distribution losses (Percentage)	26.98	20.00	15.00
Intra-state transmission losses (Percentage)	3.92	3.92	3.92
Energy requirement at state periphery (MU)	33420	35455	39841
Peak demand at 0.734 Load Factor (MW)	5868	6381	6900
Peak demand at 0.734 Load Factor (MW) (Including Agricultural load up to 50% only)	5624	6091	6600

Source : Department of Energy, GoB

The power capacity availability in the state was 3889 MW in 2018, which increased to 4767 MW in 2019, implying a growth of 22.6 percent. In order to meet the increased demand for power, the State Government has already planned for additional capacity of 5335 MW from different sources in a phased manner by 2021-22. These sources are — own generating stations, central generating stations, renewable energy sources, and long/ medium term Power Purchase Agreements (PPA) through competitive bidding. The source-wise details of this additional capacity is presented in Table 7.5. The additional capacity for power will be either from new projects, or from those under construction, or old projects which are being renovated or modernised. The total available capacity for Bihar by 2021-22 is expected to be 10,102 MW, of which 6421 MW (63.6 percent) will be conventional and the remaining 3681 MW (36.4 percent) non-conventional.

Table 7.5 : Year-wise and Source-wise Details of Capacity Expansion (2017-18 to 2021-22)

(Figures in MW)

Sources	2017-18	2018-19	Cumulative Proposed Capacity		
			2019-20	2020-21	2021-22
State Generating Stations (SGS)					
SGS Thermal	110	0	0	0	0
SGS Small Hydro	10	54	64	64	64
Share in Central Generating Station (CGS)					
CGS Thermal	2596	3421	4195	4969	5733
CGS Hydro	469	466	729	729	729
IPPs Projects (Case I)	260	488	688	688	688
NCE/RNES (Solar)	220	138	138	888	1338
NCE/RNES (Wind)	224	200	600	1200	1550
Total	3889	4767	6414	8538	10102

Note : IPP = Independent Power Producer; NCE = Non-Conventional Energy;
RNES = Renewable Energy Source

Source : Department of Energy, GoB

Table 7.6 : Estimated Availability of Power and Energy (2019-20 to 2021-22)

Year	Total Capacity (MW)	Estimated Peak Availability at State Periphery (MW)	Estimated Energy Availability at State Periphery (MU)
2019-20	6414	5323	32632
2020-21	8538	6199	36732
2021-22	10102	6992	41347

Source : Department of Energy, GoB

With the availability of additional generation capacity, the deficit in peak availability of 5.4 percent during 2019-20 will be bridged by 2020-21, with a surplus availability of 1.8 percent (Table 7.7). The surplus availability is expected to rise further to 5.9 percent during 2021-22, because of additional generation capacity. The deficit of 5.4 percent during 2019-20 will be met by power purchase from open market. The gap between energy requirement and availability is expected to go down steadily from 2.4 percent in 2019-20 to surplus of 3.6 percent in 2020-21 and 3.8 percent in 2021-22. The gap of 2.4 percent during 2019-20 will be met by Power purchase through open market.

Table 7.7 : Projected Surplus/ Deficit in Power and Energy (2019-20 to 2021-22)

Power Supply Position	2019-20	2020-21	2021-22
Estimated Peak Requirement with 50 percent agriculture load only (MW)	5624	6091	6600
Estimated Peak Availability as per State Generation Plan (MW)	5323	6199	6992
Peak demand Surplus (+) / Deficit (-) (MW)	(-) 301	(+) 108	(+) 392
Peak demand Surplus / Deficit (Percentage)	(-) 5.4	(+) 1.8	(+) 5.9
Estimated Energy Requirement at State Periphery (MU)	33420	35455	39841
Estimated Energy Availability at State Periphery as per State generation Plan (MU)	32632	36732	41347
Energy Surplus (+) / Deficit (-) (MU)	(-) 788	(+) 1277	(+) 1506
Energy Surplus (+) / Deficit (-) (Percentage)	(-) 2.4	(+) 3.6	(+) 3.8

Note : 50 percent agriculture load will be supplied in rotation

Source : Department of Energy, GoB

7.3 Institutional Structure of Power Sector

In April, 1958, the Bihar State Electricity Board (BSEB) was originally constituted under Section 5 of the Electricity (Supply) Act, 1948 and was mandated for the management of generation, transmission, distribution and other electricity-related activities in Bihar. Under the

new Bihar State Electricity Reforms Transfer Scheme 2012, the BSEB has been unbundled into five companies in November, 2012 — (i) Bihar State Power (Holding) Company Limited (BSPHCL), (ii) Bihar State Power Generation Company Limited (BSPGCL), (iii) Bihar State Power Transmission Company Limited (BSPTCL), (iv) North Bihar Power Distribution Company Limited (NBPDCCL) and (v) South Bihar Power Distribution Company Limited (SBPDCL). The responsibilities of the newly-formed companies are briefly described below.

Bihar State Power (Holding) Company Limited (BSPHCL) : This Company owns shares of the newly-incorporated, reorganized four companies — Bihar State Power Generation Company Limited, Bihar State Power Transmission Company Limited, South Bihar Power Distribution Company Limited, and North Bihar Power Distribution Company Limited. It is vested with the assets, interest in property, rights and liabilities of the erstwhile Bihar State Electricity Board (BSEB). The Company will primarily be an investment company. It will co-ordinate the activities of other companies, handle disputes and provide all necessary support to them.

Bihar State Power Generation Company Limited (BSPGCL) : This company is responsible for coordinating and advising other companies and concerns, including subsidiaries, engaged in the generation of electricity. The coordination and advisory roles include all matters concerning the construction, operation and maintenance of generating stations and associated facilities. It is also responsible for procuring fuel and its transportation to various sites and settling pending disputes.

Bihar State Power Transmission Company Limited (BSPTCL) : This company is responsible for transmission of electricity and is vested with the transmission assets, interest in property, and rights and liabilities of the erstwhile BSEB. Besides planning and coordination activities, this company is expected to develop an efficient system of intra-state transmission lines for electricity, connecting load centres to the generating stations.

North and South Bihar Power Distribution Companies Limited (NBPDCCL and SBPDCL) : These two companies undertake the activities of distribution of electricity to all consumers, trading of electricity, and implementation of rural electrification schemes. At present, rural electrification is done through several schemes — Deen Dayal Upadhyay Gram Jyoti Yojana (erstwhile Rajiv Gandhi Grameen Vidyutikaran Yojana), Special plan under Backward Region Grant Fund (BRGF), feeder separation for agriculture under Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), electric connection to all willing households under Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA). There are other schemes also under implementation for

system strengthening under Integrated Power Devolvement Scheme (IPDS), State Plan, and schemes funded by the Asian Development Bank (ADB), the last one being an Externally Aided Project (EAP). The introduction of open access in distribution sector as per the Electricity Act, 2003 and the directions of the regulator is also the responsibility of these two companies. They also tender, finalise and execute Power Purchase Agreements (PPA) and other agreements for sale or purchase of electricity.

The allocation of fund for BSPHCL and its subsidiary companies, Bihar Renewable Energy Development Agency (BREDA) and Bihar State Hydroelectric Power Corporation (BSHPC) was Rs. 3663.49 crore in 2015-16, which increased steadily to Rs. 8271.59 crore in 2017-18. Thereafter, there was a decrease in allocation of funds — Rs. 6185.63 crore in 2018-19 and Rs. 4583.13 crore in 2019-20. The breakup of this amount under various heads is given in Table 7.8.

Table 7.8 : Allocation of Funds under BSPHCL (2015-16 to 2019-20)

(Rs. in crore)

	2015-16	2016-17	2017-18	2018-19	2019-20
BRGF	2274.00	1329.40	2600.00	2013.83	1391.33
State Plan					
BSPHCL	64.43	127.50	1576.10	1399.14	1989.00
Generation	181.01	1155.00	592.50	61.85	3.50
Transmission	448.99	700.00	510.00	500.00	325.00
Distribution	486.00	3126.65	1680.00	1450.00	768.50
BREDA	60.00	150.00	249.90	75.00	50.00
BSHPC	15.00	10.00	10.00	20.00	50.00
BSHPC (RIDF)	67.80	67.80	67.80	5.80	5.80
EAP	66.26	260.91	235.29	100.00	—
MMVSNY	—	587.38	750.00	560.00	—
Total	3663.49	7514.64	8271.59	6185.63	4583.13

Note : MMVSNY = Mukhya Mantri Vidyut Sambandh Nischay Yojana

Source : Department of Energy, GoB

7.4 Distribution Companies (DISCOMs)

Distribution is an extremely important component of the whole electricity supply chain, as this is the only arm that generates revenue. This revenue enables the State Government to improve the

entire supply chain, by purchasing more electricity from the central sector. Thus, a major challenge of the power sector reforms lies in the efficient management of the distribution sector. The distribution system in Bihar is being served by two distribution companies — North Bihar Power Distribution Company Limited (NBPDC) and South Bihar Power Distribution Company Limited (SBPDCL). As on March, 2019, these companies are serving more than 145 lakh electricity consumers (Table 7.9).

Table 7.9 : Category-wise Number of Effective Consumers (As per billing data) (2014-15 to 2018-19)

Number of Effective Consumers								
Domestic	Commercial	Industrial (LT)	Industrial (HT)	Public Lighting	Traction	Agriculture	Public Water Works	Total
2014-15								
5174585 (92.5)	346375 (6.2)	19599 (0.4)	1582 (0.03)	511 (0.01)	19 (neg.)	52980 (0.9)	1302 (0.02)	5596953 (100.0)
2015-16								
7407609 (92.5)	488690 (6.1)	31405 (0.4)	1922 (0.03)	1237 (0.02)	19 (neg.)	75087 (0.9)	1760 (0.02)	8007729 (100.0)
2016-17								
9499943 (91.9)	616512 (6.0)	57433 (0.6)	2050 (0.02)	679 (0.01)	22 (neg.)	162188 (1.6)	2030 (0.02)	10340859 (100.0)
2017-18								
10136625 (89.23)	620291 (5.46)	75023 (0.70)	2372 (0.02)	1553 (0.01)	23 (neg.)	176418 (1.6)	2779 (0.02)	11359508 (100.0)
2018-19								
13475313 (92.51)	762438 (5.23)	90671 (0.62)	2806 (0.02)	2483 (0.02)	23 (neg.)	228423 (1.56)	3700 (0.02)	14565857 (100.0)

Note : Figures in bracket indicate percentage shares; neg. is negligible. All figures for the period 2014-15 to 2018-19 are based on Audited Annual Accounts.

Source : Department of Energy, GoB

The two distribution companies are already implementing several schemes for expanding and strengthening their distribution networks. These ongoing schemes include transformer replacement, procurement of new transformers, replacement of old conductors of existing high tension (HT) and low tension (LT) lines, construction of new HT and LT lines, and construction of Power Sub Stations (PSS) and bays, etc.

7.5 Operational and Financial Status

During the recent years, the demand for electricity has been increasing continuously in the state, because of the fast economic growth at one hand and the growth of population on the other. The

generation and purchase of power (net of central transmission loss) in Bihar increased from 21,677 MU in 2015-16 to 28,112 MU in 2018-19, implying a growth of around 30 percent in four years. With increase in sales, the revenue collection has also increased. The cost coverage was around 80 percent in 2017-18 and this increased to over 86 percent in 2018-19. The financial status of the two distribution companies is described in Table 7.10.

Table 7.10 : Financial Status of Power Sector (2015-16 to 2018-19)

Item	2015-16		2016-17		2017-18		2018-19	
	NBPDCL	SBPDCL	NBPDCL	SBPDCL	NBPDCL	SBPDCL	NBPDCL	SBPDCL
Generation and Purchase (MU)	8929	12748	9647	13380	10983	14576	12478	15634
Sales (MU)	6505	7199	7195	8661	8745	9503	9493	10586
Losses (Percentage)	27.4	43.5	25.6	35.6	20.38	34.80	23.92	32.29
Average Revenue (Rs./Unit)	4.14	4.45	4.02	4.58	5.48	6.02	6.55	7.01
Sale of Power (Rs. crore)	2696	3202	2891	3971	4798	5718	6221	7419
Total Income (including subsidies) (Rs. crore)	4475	6309	4620	6755	5073	6189	7461	7953
Total Cost (Rs. crore)	4815	7043	5134	7527	5814	8520	8057	9766
Cost Coverage (Total Income/ Total cost) (Percentage)	92.9	89.6	90.0	89.7	87.3	72.6	92.6	81.4
Financial Loss (Percentage)	7.1	10.4	10.0	10.3	12.7	27.4	7.4	18.6

Source : Department of Energy, GoB

Recently, there has been a substantial improvement in the power situation in the state due to the measures taken by the State Government in areas such as reducing transmission and distribution (T&D) losses, and staggering of loads to 24 hours of the day. The distribution companies made all out efforts to address this issue by improving the billing and collection system, along with the metering of all consumer connections. This resulted in reduction of Aggregate Technical and Commercial (AT&C) loss from 59.2 percent in 2011-12 to 40.6 percent in 2016-17 and further reduced to 30.2 percent in 2017-18; however, there was a slight increase in 2018-19 (30.4 percent) (Table No. 7.11). Energy accounting and auditing at feeder level and distribution transformer (DT) level are essential for reducing these losses and the distribution companies have already started this exercise. Discoms are striving hard to bring down the AT&C loss to 15 percent.

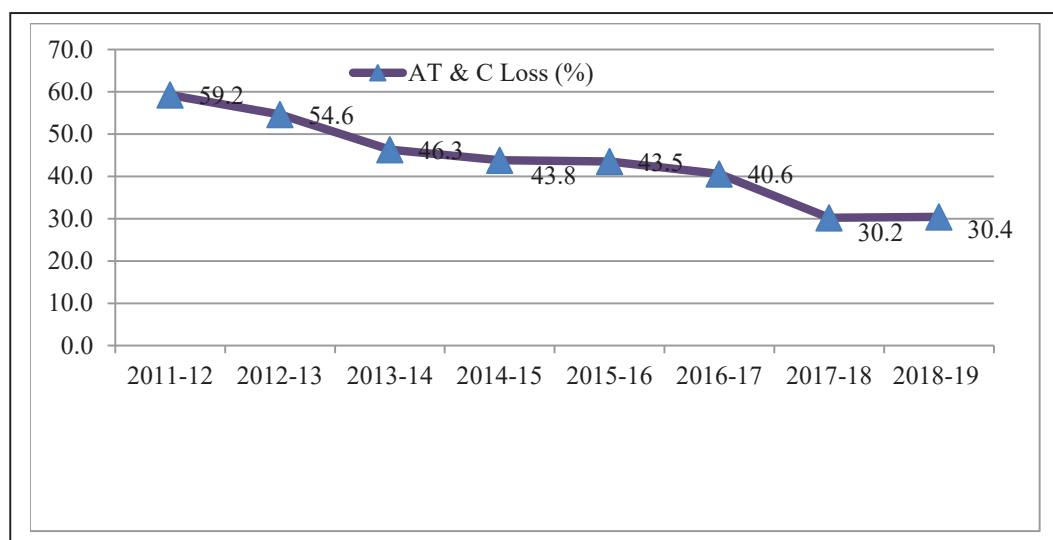
Table 7.11 : Aggregate Technical and Commercial losses (2011-12 to 2018-19)

Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
AT&C Loss (%)	59.2	54.6	46.3	43.8	43.5	40.6	30.2	30.4

Note : AT&C loss is estimated using PFC formula (excluding Nepal)

Source : Department of Energy, GoB

Chart 7.2 : Aggregate Technical and Commercial Losses (2011-12 to 2018-19)



7.6 Central Government Programmes for Power Sector

Four important programmes of the Central Government for expanding the coverage of electricity supply in urban and rural areas are — Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) (Erstwhile Rajiv Gandhi Grameen Vidyutikaran Yojana - RGGVY), Integrated Power Development Scheme (IPDS) (Erstwhile Restructured Accelerated Power Development and Reforms Programme - R-APDRP), Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) and Special Plan (Backward Regions Grant Fund). The progress of these programmes is presented below:

Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

Bihar, with 88.7 percent of its population living in rural areas (2011 census), remains the most ruralised state in India, the national average being around 68.9 percent. Thus, improving connectivity of rural areas to the grid power is of great importance. In view of this, under DDUGJY, the rural electrification work has been completed in all 38 districts of the state, with all villages and habitations fully electrified. The Central Government had launched DDUGJY with the following objectives:

- (i) Separation of agriculture and non-agriculture feeders, facilitating judicious restoring of supply to agricultural and non-agricultural consumers in the rural areas.
- (ii) Strengthening and augmentation of sub-transmission and distribution infrastructure in rural areas, including metering of distribution transformers/feeders/consumers.
- (iii) Rural electrification for completion of the targets laid down under RGGVY by carrying forward the approved outlay of RGGVY to DDUGJY.

The scheme of RGGVY, as approved by the Central Government for implementation during Twelfth and Thirteenth Plans, has now been subsumed in the new scheme of the Central Government, called DDUGJY.

The total sanctioned cost of the project is Rs. 6500.71 crore, out of which Rs. 3791.88 crore has been utilized up to September, 2019. Under this scheme, 60 percent of the project cost is being provided by the Central Government as grant and the remaining 40 percent is being arranged by the State Government. The work is under progress and the target month for completion of the scheme is March, 2020.

Integrated Power Development Scheme (IPDS)

The earlier scheme of R-APDRP has now been subsumed in the newly launched Integrated Power Development Scheme (IPDS). It has several components — IT enablement of distribution sector, strengthening of sub-transmission and distribution network for addressing distribution constraints, and provisioning of solar panels on government buildings to meet growing power demand. In addition, the scheme also includes net-metering, and metering of distribution transformers/feeders/ consumers in urban areas.

Under Part-A of the erstwhile R-APDRP scheme, the work of IT enablement in 67 towns (excluding 4 franchisee towns) has been completed. The strengthening of distribution system in 60 towns under Part-B of the scheme and in 7 towns under the ADB-funded scheme has also been completed. The aim is to provide real-time monitoring and control, minimizing losses, load balancing, and improving voltage profiles.

The newly launched scheme of IPDS is being implemented in 133 towns of Bihar for — (a) strengthening of sub-transmission and distribution network, (b) installation of solar panels on

government buildings, (c) metering of feeders/ distribution transformers/ consumers, and (d) IT implementation in distribution system in urban areas. The project will ensure 24X7 power supply and reduction in AT&C losses. The work is under progress and the target month for completion of the scheme is March, 2020. The details of capital expenditure under R-APDRP and IPDS are presented in Table 7.12.

Table 7.12 : Capital Expenditure of R-APDRP & IPDS

Project Component under R-APDRP	Outlay (Rs. crore)	Expenditure incurred (Rs. crore)	Expenditure as percentage of outlay
R-APDRP — Part A	253.68	176.84	69.7
R-APDRP — Part B	1155.21	992.01	85.9
R-APDRP — SCADA	34.36	16.02	46.6
IPDS (IT & ERP)	67.68	0.00	0.0
RT DAS	5.85	0.00	0.0
IPDS (System Strengthening)	2208.91	1192.56	54.0
Total	3725.69	2377.43	63.8

Source : Department of Energy, GoB

The Central Government has further sanctioned a scheme under IPDS for earlier DF (Distribution Franchise) towns — Muzaffarpur, Bhagalpur and Gaya. This scheme is meant for strengthening of system in these towns at a total cost of Rs. 454.77 crore. In addition, Rs. 71.20 crore has been sanctioned for Bodhgaya and Ara towns for underground (UG) cabling work and system strengthening. Over and above, sanction has also been accorded for an amount of Rs. 179.80 crore for construction of 14 GIS (Gas Insulated Switchgear) and 6 E-house Containerized Power Sub-Stations in different towns under NBPDC & SBPDCL. For this scheme, the Central Government will provide 60 percent of the project cost as grant and the remaining 40 percent is to be arranged by the State Government and the distribution companies. The agencies for construction of GIS Power Sub-Stations have been finalized and the work has started; for E-house Power Sub-Stations, tendering is under process.

Har Ghar Bijli under SAUBHAGYA

‘Har Ghar Bijli’ is one of the Seven Resolves (Saat Nischay) of the State Government, with an aim to provide electricity connection to each willing household. As all rural BPL households are covered under DDUGJY and there was no scheme for providing service connection to rural APL households, a scheme has been sanctioned by the State Government for releasing new service

connection to APL rural households under Mukhyamantri Vidyut Sambandh Nischay Yojana (MMVSNY). Meanwhile, in October 2017, the Union Ministry of Power had issued a memorandum conveying approval of Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) to provide electricity connection to each willing household across the country. Under this scheme, the central government has sanctioned an amount of Rs 3000 per household for connection, and Rs 1500 per household for last mile connectivity.

The State Government has adopted SAUBHAGYA and the Mukhyamantri Vidyut Sambandh Nishchay Yojana (MMVSNY) is subsumed in SAUBHAGYA. The scheme has been completed in October, 2018 by providing 32,59,041 electricity connections to all willing households in rural areas. Similar connections are being given on demand in urban areas.

Special Plan (Backward Regions Grant Fund)

The Backward Regions Grant Fund (BRGF) of the Central Government is designed to redress regional imbalances in development. This is a fully funded scheme of the Central Government. The fund provides financial resources for supplementing and converging existing developmental inflows into the identified backward districts. It aims to bridge critical gaps in local infrastructure and other development requirements that are not being adequately met through existing inflows. The fund facilitates participatory planning, decision making, implementation and monitoring, reflecting the locally felt needs. It also helps to improve the performance of critical functions by the State Government. The scheme is divided into four parts — Phase-I, Phase-II, Phase-II (Part-C) and Rural Electrification (RE). Phase-I was meant for addressing immediate distribution constraints and Phase-II for meeting the load growth for next 5 years. Next, Phase-II (Part-C) was meant for addressing the issue of reliability and safety of the distribution system by converting overhead LT and 11 KV lines with bare conductor by Arial Bunched Cable (AB Cable) at vulnerable locations and for bridging the gap in Rural Electrification work in 11 districts (under 11th Plan Phase-II). The cost of the above schemes is Rs. 6431.86 crore and, till September, 2019, the expenditure incurred is Rs. 3067.81 crore under NBPDC and Rs. 2299.11 crore under SBPDCL, totaling to Rs. 5366.92 crore (83.4 percent of allocation).

7.7 Transmission

Power is supplied to various categories of consumers through a transmission network, which also involves the transformation of high voltage power to lower voltage. The transmission network serves as an important link between the generation and distribution of electricity. The challenges pertaining to the transmission process are, thus, mostly related to the growing needs of the other

two segments — generation and distribution. To meet the growing demand of power, a robust and reliable transmission network is required for both inter-state and intra-state transmission. The existing transmission system is, therefore, being strengthened with proper planning to cater to the demand for 24 hours availability of power by all categories of consumers.

Presently, about 16,644 circuit km EHV (Extra High Voltage) transmission line, 148 grid sub-stations with total transformation capacity of 8510 MVA at 220/132 KV level and 13,870 MVA at 132/33 KV level comprise the transmission system in Bihar. The projection for 2019-20 is 17,300 circuit km transmission line, 153 grid sub-stations with 8830 MVA transformation capacity at 220/132 KV level and 14490 MVA at 132/33 KV level. The required capacity for 24 hours power supply for the period 2019-20 to 2021-22 has been projected, as presented in Table 7.13. The plan of action to meet the projected demand in 2019-20 to 2021-22 has been shown in Table 7.14. The peak demand met was 3459 MW in 2015-16, which increased to 5891 MW in September, 2019, implying an increase of 70 percent in four years.

Table 7.13 : Projected Required Capacity for Power (2019-20 to 2021-22)

Demand / Capacity	2019-20	2020-21	2021-22
Peak Demand (MW)	5868	6381	6900
Transformation Capacity needed to meet Peak Demand (MW)	11002	11964	12938
Available Capacity MVA at 400/220/132 KV level	Nil	3000	4000
220/132 KV level	8830	13270	13670
132//33 KV level	14490	16800	17500

Source : Department of Energy, GoB

Table 7.14 : Plan of Action for Strengthening Transmission (2019-20 to 2021-22)

Year	Nos. of New Grid Sub-Stations	New Transmission Lines (Circuit km)
2019-20	<ul style="list-style-type: none"> ▪ 400/220/132/33 kv-0 No. ▪ 400/220/132 kv-0 No. ▪ 220/132/33 kv-01 No. ▪ 220/33 kv- 01 No. ▪ 132/33 kv - 03 Nos. 	<ul style="list-style-type: none"> ▪ 400 kv-0 ▪ 220 kv-500 ▪ 132 kv-190
2020-21	<ul style="list-style-type: none"> ▪ 400/220/132/33 kv-02 Nos. ▪ 400/220/132 kv – 01 No. ▪ 220/132/33 kv-10 Nos. ▪ 132/33 kv - 02 Nos. 	<ul style="list-style-type: none"> ▪ 400 kv-390 ▪ 220 kv-1500 ▪ 132 kv-1100
2021-22	<ul style="list-style-type: none"> ▪ 400/220/132 kv-01 No. ▪ 400/220/132 kv-0 No. ▪ 132/33 kv – 07 Nos. 	<ul style="list-style-type: none"> ▪ 400 kv-70 ▪ 220 kv-100 ▪ 132 kv-250

Source : Department of Energy, GoB

7.8 Generation

The total generation capacity of power as on March 2019 for the state was 4767 MW. Out of this, 82 percent is from coal-based thermal power, 11 percent from hydro power, and the balance 7 percent from renewable energy sources. In terms of ownership, central sector has the largest share of 86 percent, followed by the private sector/IPP (13 percent) and state sector (1 percent). The details of existing generation capacity in Bihar are shown in Table 7.15.

Table 7.15 : Existing Generation Capacity (March 2019)

(Figures in MW)

Ownership/ Sector	Thermal				Nuclear	Hydro (Renewable)	RES (MNRE)	Grand Total
	Coal	Gas	Diesel	Total				
State	0	0	0	0	0	54	0	54
Private/ IPPs	488	0	0	488	0	0	128	616
Central	3421	0	0	3421	0	466	210	4097
Total	3909	0	0	3909	0	520	338	4767

Note : RES = Renewable Energy Sources; MNRE = Ministry of New and Renewable Energy; IPP = Independent Power Producers

Source : Department of Energy, GoB

The present status of the two generating units that remained in Bihar after bifurcation of the state in 2000 is as mentioned below :

(i) **Barauni Thermal Power Station (BTPS)**

BTPS has 7 different units, 5 of them have already run through their working life and are not in service anymore. Unit 7 has started generation after completion of Renovation and Modernisation (R&M). Further R&M work of Unit 6 is in progress. The construction work of two new units (Unit 8 and 9) of 250 MW each is also going on under the extension project of BTPS. The coal linkage and environmental clearance have been obtained for these two new units. Capacity addition of Unit 8 has been achieved in January, 2018 and that of Unit 9 in March, 2018. Further, the State Government has transferred the ownership of Barauni Thermal Power Station to National Thermal Power Corporation (NTPC) to reduce the cost of generated power from these units by utilizing expertise of NTPC.

(ii) **Kanti Bijlee Utpadan Nigam Limited (KBUNL)**

The KBUNL was a joint venture of NTPC and BSPGCL, having equity partnership ratio of 65:35. It has two units of 110 MW each. The power production has started in both the units

after renovation and modernization. The construction work of two additional units (Units 3 and 4) of 195 MW each has also been completed and the units have started generating power. Further, as per the decision of the State Government, 100 percent equity share has been transferred to NTPC.

At present, the work is in progress for some more generating units in Bihar. On completion of all these projects, the dependence of Bihar on the central sector for power will be lessened. The details of these new projects are presented below.

- (i) **Nabinagar Stage-1 Plant** : This project is located in Aurangabad district. The Nabinagar Power Generation Company (NPGC) was initially a joint venture of NTPC and BSPGCL, having equity partnership ratio of 50:50. Later, as per the decision of the State Government, 100 percent equity share has been handed over to NTPC. Commissioning of the first unit of 660 MW has been completed in September, 2019. The construction work of the other 2 units of 660 MW each (total 1320 MW) is in progress and expected to be completed by March, 2020.
- (ii) **Power Project in Buxar** : An agreement was signed with Satluj Jal Vidyut Nigam Ltd. (SJVNL) for construction of green field power project at Chausa (Buxar), having 2 units of 660 MW each. Topographical survey of the project area, erection of boundary pillars and barbed wire fencing work for the project is completed. The Detailed Project Report (DPR) has been updated on August, 2016 and private land has been acquired for the main plant. Amrapali coal block has been allocated to SJVNL. The Power Purchase Agreement (PPA) has been signed with distribution companies of Bihar and 85 percent power has been allocated to Bihar. The environmental clearance has also been obtained. The Central Government has accorded the investment approval in March, 2019. The work for main plant was awarded to a private company in June, 2019. Foundation stone has been laid by Hon'ble Prime Minister on 09.03.2019. Presently, concrete test pile, facilities and site work are under progress. Consultancy service for main work and railway infrastructure has been awarded to NTPC and RITES, respectively. The project is expected to be completed by the year 2023.
- (iii) **Ultra Mega Power Project (Banka)** : A proposal has been prepared for the establishment of Ultra Mega Power Project in Banka (approximately 4000 MW), for which 2500 acres of

land has been identified. The Central Water Commission has given consent for 120 cusecs of water from the Ganga river. The Power Finance Corporation (PFC) has incorporated two Special Purpose Vehicles (SPV) for carrying out the pre-award project activities. The Union Ministry of Power has allocated Pirpainti/ Barhat Coal Blocks for the project. Bihar has been allotted 2000 MW of power from this project.

Table 7.16 : Details of Existing and Planned Generation Units (2016-17 to 2020-21)

2016-17	2017-18	2018-19	2019-20 (Under progress)	2020-21	By 2022 (Upcoming Projects)	Beyond 2022
KANTI TPP (2x110 MW) & (2x195 MW)						
220 MW	195 MW Unit 3	195 MW Unit 4 completed	—	—	—	—
BARAUNI TPP (2x110 MW) & (2x250 MW)						
—	110 MW Unit 7: Nov. 16	500 MW Unit 8- Capacity addition achieved in Jan'18 Unit 9- Capacity addition achieved in Mar'18 (250 MW each)	Unit 8-COD on 22.11.19 (250 MW) — Unit 6- Dec' 19 (likely) (110 MW)	Unit 9- COD (250 MW)	—	—
NABINAGAR TPP (3x660 MW) 1980 MW						
—	—	—	1980 MW Unit 1: COD on 06.09.19 Unit 2: COD in Mar'20 Unit 3: COD in Mar'20 (660MW each)	—	—	—
BUXAR TPP (2x660 MW) SJVNL						
—	—	—	—	—	—	MoU signed on 20.11.15 1320 MW
BANKA UMPP (4000 MW)						
—	—	—	—	—	—	4000 MW
Total Installed Capacity						
220 MW	525 MW	1220 MW	3310 MW	3310 MW	3310 MW	8,630 MW

Source : Department of Energy, GoB

7.9 New Schemes / Projects

Reconductoring Scheme

A new scheme of R&M (Renovation and Modernization) for replacement of existing old and dilapidated conductors, poles, brackets, insulators, etc. of 33 KV, 11 KV and LT Lines has been sanctioned by the State Government to strengthen the power infrastructure. A sum of Rs. 3070.23 crore has been sanctioned to replace 1062 CKM of 33 KV Line, 25,272 CKM of 11 KV Line and 45,339 CKM of LT Line. The shares of two distribution companies in this amount are — Rs. 1652.15 crore (NBPDCCL) and Rs. 1418.08 crore (SBPDCL). The Turn key Agencies have been selected circle-wise through e-tendering in March, 2018, and work has already started. The scheme is planned to be completed within a period of three years. However, considering the threat to the safety of life and property due to snapping of old and dilapidated conductors, a target was given by the State Government to both DISCOMs to complete the work of reconductoring by December, 2019. After completion of SAUBHAGYA Scheme for providing electricity connection to all willing households by October, 2018, both distribution companies (NBPDCCL & SBPDCL) started the work of reconductoring in mission mode from November, 2018 with a view to complete the work within the targeted period. The project gained momentum after a strategy was evolved to achieve the target divisionwise by mobilizing all resources. With this strategy, two DISCOMs together have been able to complete the work in 17 divisions by September, 2019. The status of completion of reconductoring scheme as on September, 2019 is 701 CKM for 33 KV line (66 percent), 15,759 CKM for 11 KV line (62 percent) and 24,071 CKM for LT line (53 percent). The progress report of the scheme is given in Table 7.17.

Table 7.17 : Status of Reconductoring Schemes (September, 2019)

Sl. No.	Line (In CKM)	NBPDCCL		SBPDCL		Total	
		Scope	Achievement	Scope	Achievement	Scope	Achievement
1	33 KV Line	684	477 (69.7)	378	224 (59.3)	1062	701 (66.0)
2	11 KV Line	13357	9271 (69.4)	11915	6488 (54.5)	25272	15759 (62.4)
3	LT Line	25500	15844 (62.1)	19839	8227 (41.5)	45339	24071 (53.1)

Note : The figures in brackets indicate achievement as percentage of the scope.

Source : Department of Energy, GoB

Ujjwal Discom Assurance Yojana (UDAY)

For operational and financial turnaround of power distribution companies (DISCOM), the Union Ministry of Power had introduced the UDAY scheme. The scheme includes various activities for improvement in operational and financial efficiencies which ultimately aim at — (a) Reduction

in AT&C Loss to 15 percent, and (b) Reduction in gap between Average Cost of Supply (ACS) and Average Revenue Realized (ARR) to zero, both by 2019-20. A tripartite agreement among Government of Bihar, Union Ministry of Power and DISCOMs (NBPDC and SBPDCL) was signed in February, 2016.

The scheme also provides for taking over 75 percent of the debt of DISCOMs by the State Government over a period of two years (50 percent in 2015-16 and 25 percent in 2016-17). Out of the total debt of Rs. 3109.05 crore on both the DISCOMs of Bihar, Rs. 2332.01 crore has been taken over by the State Government under UDAY Scheme.

Presently, information on all the parameters aiming to reduce AT&C Loss and ACS-ARR gap have been made available online through UDAY website portal (www.uday.gov.in), where every participating DISCOM has to upload the progress on monthly/quarterly basis. The marks are assigned to each activity and marks obtained on the basis of monthly/quarterly achievement are used to decide the ranking of DISCOMs among the participating states. Both DISCOMs of Bihar together have reduced AT&C loss from 43.5 percent (2015-16) to 30.42 percent (2018-19) and also reduced ACS-ARR gap from 89 paise per unit (2015-16) to 48 paise per unit (2018-19).

7.10 Recent Developments in Power Sector

1. **Smart Prepaid Metering** : Both NBPDC and SBPDCL have signed an MoU with M/s Energy Efficiency Services Limited (EESL) for deployment of Smart Metering Solution with prepaid functionalities across all categories of LT consumers in urban and semi-urban areas and agriculture consumers in rural areas. M/s EESL has appointed M/s EDF, India along with M/s Accenture as its System Integrator. M/s GENUS Power is providing smart meters to the consumers. At present, M/s GENUS Power has supplied 82,610 smart meters (single as well as three phase), out of which a total of 6114 meters are installed in the field. There are 2578 Smart meters installed in urban/ semi- urban areas and 3536 smart meters installed in agriculture category of consumers.

Smart metering functionalities such as connect/disconnect, load control, monitoring of daily consumption at consumer end, and prepaid functionality with arrear management are already commissioned and integrated with NIC billing solution of DISCOMs. The daily consumption is calculated in Meter Data Management solution and the corresponding amount is deducted from the prepaid balance. This information is updated on consumer App for being viewed by the consumer. On an average, 93 percent of the meters are getting communicated on a daily basis and all the smart metering functionalities are working fine.

Further, consumer indexing in Bhagalpur, Gaya, Areraj, Teghra and Dalsinghsarai towns has started for onward installation of smart meter. Also, smart meters are being installed in new connection related to 'Har Ghar Nal Jal Yojana'.

2. **Bill on Missed Call through SMS** : The consumer can get information through SMS on current payment due against electricity connection and due date, by giving a missed call on 7666008833. Additionally, the URL for downloading the latest electricity bill is also being provided. This service will reduce the consumer visits to electricity office.
3. **Mobile Number Registration through Missed Call** : The consumer can register/update his latest mobile number by giving a missed call on 7666008833. One Time Password (OTP) is sent to the consumer's mobile number, with a link to register new mobile number in consumer account. In the provided link, the consumer has to enter Consumer Account (CA) number with OTP provided in the SMS.
4. **Rural Revenue Franchise (RRF) Monitoring System** : The power distribution companies are engaging RRF (Rural Revenue Franchisee) on contract basis for billing related activities. DISCOM is developing an application software to provide various online services to RRF — hiring of RRF, allotment of work, payment to RRF, etc. Presently, these services are done manually which is time consuming and less flexible.
5. **Special Task Force (STF)** : DISCOMs have developed a software application for monitoring various raids done by STF (Special Task Force) flying squad to improve the efficiency of STF. With this facility, DISCOM is able to analyse various information related to raids done by the STF staff.
6. **Suvidha Mobile APP**: DISCOMs have developed a mobile app (SUVIDHA) to facilitate various services to the consumers. These services include — online bill payment, viewing energy bills, viewing payment transactions, registration of complaints, information on electricity theft, load change service, correction of spelling in the name and address, etc.

All divisions are equipped with the SUVIDHA counters. The counter will act as a single window interface for registration of consumer complaints. The officer present at SUVIDHA counter will assist the consumer by providing required information related to various services of electricity supply. All consumers can view the status of the complaints online through a web portal.

7. **Real Time Data Acquisition System (RT-DAS)** : To improve the quality of electricity in IPDS towns, DISCOMs are in process of implementing Real Time Data Acquisition system to generate SAIFI/SAIDI reports for analysis of quality of electricity supply (SAIFI = System Average Interruption Frequency Index / SAIDI = System Average Interruption Distribution Index).
8. **Implementation of ERP and Single Billing Solution** : DISCOMs are in process of implementation of ERP (Enterprise Resource Planning) to improve the Government-to-Employee services. The ERP exercise includes human resources, finance, procurement and projects. Presently, there are two billing systems, one for rural and other for urban areas. Now DISCOMs are in the process to implement single billing solution with the latest technology. The tender for the same has been floated to select an implementing agency. A Consultant for the task has already been appointed.
9. **Social Media** : DISCOMs are setting up a dedicated cell to answer the issues raised in social media for creating a good reputation for itself.
10. **Implementation of ISO 27001** : DISCOMs are in the process of implementing of ISO 27001:2013 certification to adopt best practices in cyber security which would secure all its IT infrastructures.

7.11 Bihar Renewable Energy Development Agency (BREDA)

Most of Bihar's installed generation capacity is concentrated in thermal power plants. This not only leads to a concern about the clean generation of electricity, it also puts a fiscal burden on the State Government, given that the prices of coal may be very volatile. With increasing concerns of climate change due to emission of greenhouse gases into the atmosphere, use of clean energy is one of the viable solutions for mankind to preserve the environment for future generation.

Thus, to promote renewable energy power projects, the State Government has also created an agency called Bihar Renewable Energy Development Agency (BREDA). This agency is responsible for the development of projects that would use non-conventional energy sources for production of electricity. The State Government provides funds to BREDA, both for the schemes and also for the expenditure on establishments and expenditure on subsidies.

BREDA is currently executing projects of solar pumps and rooftop installations under CAPEX (Capital Expenditure) model. Various other projects like Floating Power Plants and Ground Mounted Grid-tied Solar Power Plants are under different stages of approval.

Table 7.18 : Achievements of BREDA (2017-18 to 2019-20)

2017-18		
	Physical Achievement	Financial Outlay (Rs. crore)
A. Solar Photovoltaic Scheme		
Solar Water Pumping Systems installation under <i>Mukhyamantri Naveen & Naveekarniya</i> irrigation scheme	280 nos.	8.63
Installation of 1kWp solar rooftop off-grid power plant systems under <i>Mukhyamantri Naveen & Naveekarniya</i> scheme	2135 nos.	32.00
Installation of 2 nos. of 40kWp solar off-grid power plant at Hon'ble Civil and Session Court buildings at Bhagalpur and Muzaffarpur districts under e-court mode mission	80 kWp	0.88
Installation of 23 kWp solar power plant at Hon'ble CM House, NEK SAMVAD BHAWAN	23 kWp	0.276
Solar Street Lighting System in Katihar district under District Minority Welfare Department	1425 Nos. (57.01 kWp)	2.19
Installation of 3.6 kWp off grid solar power plant at 27 locations LWE affected Police Stations	97.2 kWp	1.21
Installation of Solar Street Lighting System	157 nos.	0.274
B. BEE (Bureau of Energy Efficiency) Schemes		
Establishment of Energy Club in School	8 nos.	0.0264
Distribution of LED bulbs in selected 8 villages of Samastipur and Saran districts	8 nos.	0.059
Model Energy Efficient Village Project	1 no.	0.025

2018-19		
	Physical Achievement	Financial Outlay (Rs. crore)
A. Solar Photovoltaic Scheme		
Installation of 1kWp solar rooftop off-grid power plant systems under <i>Mukhyamantri Naveen & Naveekarniya</i> scheme	744 nos.	11.15
Installation of 2 nos. of 40kWp solar off-grid power plant at Hon'ble Civil and Session Court buildings at Gaya, Nalanda, Bhagalpur & Muzaffarpur districts under e-court mode mission	160 kWp	1.76
Installation of 5 kWp off grid solar power plant at 62 locations of BSEIDC	310 kWp	3.875
Installation of 3.6 kWp off grid solar power plant at 72 locations LWE affected Police Stations	259.2 kWp	3.24
Installation of 40 kWp off grid roof top solar power plant and 04 nos. of Solar Street Light at Mangal Talab, Patna under CSR initiative	40 kWp	0.446
Installation of 500 Wp off grid roof top solar power plant with 04 nos. of 9 W Street Lights at 25 nos. Police Stations in Gaya	12.5 kWp	0.31
Solar Water Pumping Systems installation under <i>Mukhyamantri Naveen & Naveekarniya</i> Irrigation Scheme	841 nos.	20.12
Distribution of Solar Home Lighting System through Jeevika in Muzaffarpur, Aurangabad, Jamui, Banka and Gaya districts	3485 nos.	1.34
B. BEE (Bureau of Energy Efficiency) Sponsored Schemes		
Energy Efficiency in Government Schools : Provision of free appliance to the schools	23 nos.	0.16
Awareness campaign on Energy Conservation & Efficiency	5 nos.	0.17
Model Energy Efficient Village campaign	1 no.	0.06
Energy Audit at Hon'ble Governor House	1 no.	0.03

2019-20 (Up to September, 2019)		
	Physical Achievement	Financial Outlay (Rs. crore)
A. Solar Photovoltaic Scheme		
Installation of 90 nos. of Solar Street Light system at Mangal Talab (Patna), Jamui and Munger districts	30 nos.	0.05
Installation of Grid Connected Rooftop Solar Power Plant at 113 nos. of residential buildings all over Bihar under <i>Mukhyamantri Naveen & Naveekarniya Rooftop Solar Sanyantra Adhithapan Scheme</i>	583 kW	3.26
Installation of Grid Connected Rooftop Solar Power Plant at 289 nos. of different Govt. buildings in all over Bihar	4.42 MW	22.85
Solar Water Pumping System installation under <i>Mukhyamantri Naveen & Naveekarniya Irrigation Scheme</i>	91 nos.	2.13
B. BEE (Bureau of Energy Efficiency) Sponsored Schemes		
Workshop for ECBC	02 nos.	0.04

Source : BREDA

7.12 Bihar State Hydroelectric Power Corporation (BSHPC)

Besides the thermal power, Bihar also has the potential for generating power from water resources and, presently, this is being exploited through a number of hydroelectric power projects. The Bihar State Hydroelectric Power Corporation (BSHPC) was established to oversee expansion of hydroelectric power projects in the state. During the Tenth Plan, BSHPC had started exploring possibilities for major hydel projects, besides its earlier mandate for minor hydel projects. There are 13 minor hydel projects that are currently operational in the state with a total installed capacity of 54.3 MW.

(i) Kosi Hydel Power Station (KHPS)

The Kosi Hydro Power Station (Kataiya), Birpur, consisting of 4 units of 4.8 MW each, was commissioned during 1970-78. This project was handed over to the BSHPC in November, 2003. The renovation work of 3 out of 4 units has been completed and power generation has started.

(ii) Eastern Gandak Canal HE (Hydroelectric) Project

The Eastern Gandak Canal HE Project in Valmikinagar, West Champaran was commissioned during 1996-97, consisting of 3 units of 5 MW each.

(iii) Sone Western Link Canal HE Project

Sone Western Link Canal HE Project in Dehri-on-Sone, Rohtas, consisting of 4 units of 1.65 MW each, was commissioned during 1991-92.

(iv) **Sone Eastern Link Canal HE Project**

Sone Eastern Link Canal HE Project in Barun, Aurangabad, consisting of 2 units of 1.65 MW each, was commissioned during 1996-97.

(v) **Agnoor HE Project**

Agnoor HE Project, Arwal, consisting of 2 units of 0.5 MW each, was commissioned during 2004-05.

(vi) **Dhelabagh HE Project**

Dhelabagh HE Project in Rohtas, consisting of 2 units of 0.5 MW each, was commissioned during 2006-07.

(vii) **Triveni Link Canal HE Project**

Triveni Link Canal HE Project in West Champaran, consisting of 2 units of 1.5 MW each, was commissioned during 2007-08.

(viii) **Nasriganj HE Project**

Nasriganj HE Project in Rohtas, consisting of 2 units of 0.5 MW each, was commissioned during 2007-08.

(ix) **Sebari HE Project**

Sebari HE Project in Rohtas, consisting of 2 units of 0.5 MW each, was commissioned during 2008-09.

(x) **Jainagra HE Project**

Jainagra HE Project in Rohtas, consisting of 2 units of 0.5 MW each, was commissioned during 2007-08.

(xi) **Shirkhinda HE Project**

Shirkhinda HE Project in Rohtas, consisting of 2 units of 0.35 MW each, was commissioned during 2009-10.

(xii) **Belsar HE Project**

Belsar HE Project in Arwal, consisting of 2 units of 0.5 MW each, was commissioned during 2011-12.

(xiii) **Arwal HE Project**

Arwal HE Project in Arwal, consisting of 1 unit of 0.5 MW, was commissioned during 2011-12.

Presently, the construction work is in progress for 12 more schemes, the details of which are presented in Table 7.19.

Table 7.19 : Minor Hydel Projects under Construction (September, 2019)

Sl. No.	Project	District	Capacity (MW)
Work progress more than 75%			
1	Amethi (1x500 KW)	Rohtas	0.5
2	Tejpura (2x750 KW)	Aurangabad	1.5
3	Paharma (2x500 KW)	Rohtas	1.0
4	Rajapur (2x350 KW)	Supaul	0.7
Work progress between 50% to 75%			
5	Mathauli (2x400 KW)	West Champaran	0.8
6	Rampur (1x250 KW)	Rohtas	0.25
7	Natwar (1x250 KW)	Rohtas	0.25
8	Sipaha (2x500 KW)	Aurangabad	1.0
9	Dehra (2x500 KW)	Aurangabad	1.0
10	Walidad (1x700 KW)	Arwal	0.7
11	Dehri Escape	Rohtas	-
Work progress less than 50%			
12	Barwal (2x800 KW)	West Champaran	1.6
Total			9.3 MW
Capacity addition			54.3 MW + 9.3 MW
Grand Total			63.6 MW

Source : Bihar State Hydroelectric Power Corporation Limited

BSHPC is also engaged in exploring the possibilities of following projects in the state:

- **Dagmara HE Project (130 MW)** : The construction of Multipurpose Dagmara (130 MW) Hydel Projects on Kosi in Supaul has been proposed. The consultancy for preparing the DPR has been awarded and work is in progress.

- **Indrapuri HE Project (300 MW)** : The State Government has sanctioned the construction of Indrapuri (300 MW) Hydel Projects on Sone River. The Department of Water Resources of the State Government is preparing DPR for the construction of dam for this project and it is in final stage.
- **Gandak, Burhi Gandak & Mahananda River Basin Projects** : A survey was conducted in the Gandak, Burhi Gandak and Mahananda River Basin to assess its Hydro Power potential and to identify the sites for construction of hydel projects. As per the feasibility report, the sites and capacity of the projects have been identified, for which detailed survey, investigation and DPR are required. The details of sites are presented in Table 7.20.
- **Solar Plant on Vacant Land in Hydel Projects** : BSHPC has decided to install solar plants on the roof tops of buildings of Power houses, Vacant lands, Power channels and Tailrace channels for generation of 10 MW of solar energy.

Table 7.20 : Site and Capacity of Gandak, Burhi Gandak & Mahananda River Basin Projects

Sl. No.	Project/ Site	Capacity (MW)
Gandak River Basin		
1	Bettiah HEP	80.0
2	Bagaha HEP	50.0
Burhi Gandak River Basin		
3	Raghunathpur HEP	2.0
4	Baragovind HEP	4.4
Mahananda River Basin		
5	Basantpur SHP	2.1
6	Sonapur SHP	11.4
7	Dalkhola SHP	7.7
8	Rupadhar SHP	2.5
Total Capacity		160.1 MW

Source : Bihar State Hydroelectric Power Corporation Limited

CHAPTER - VIII

RURAL DEVELOPMENT

The village is the cell of the national body and the cell-life must be healthy and developed for national body to be healthy and developed. — Sri Aurobindo

Abstract

Around 89 percent of Bihar's population reside in rural areas. Bihar's economic development greatly depends on development of its rural areas, since rate of urbanisation in Bihar is only 11.4 percent in 2011 Census. The Bihar Government has adopted a strategic approach to invest in rural infrastructure and income generation programmes. Data from different State Government departments, such as Rural Development Department, Bihar Rural Livelihood Promotion Society (BRLPS), Department of Food and Consumer Protection, Department of Panchayati Raj, Department of Revenue and Land Reforms, etc. have been used in this chapter. Under the BRLPS, JEEViKA has achieved tremendous progress in poverty alleviation in rural areas. The role of MANREGA in providing wage employment and restricting labour migration is notable in the recent years. The State Government is committed to uplift the social, economic and political condition of rural people by strengthening the Panchayati raj institutions. Also, the State Government has been providing physical and financial support to improve living condition of all socially and economically weaker sections of society.

According to Census 2011, the population of Bihar was 10.41 crores, and around 89 percent of the total population reside in rural Bihar. Therefore, rural development is pivotal for Bihar and the livelihood options of such a large population depend on the economic activities that take place in rural areas and its surroundings. Rural development requires a multisectoral approach for making it sustainable and inclusive. For the overall well-being of rural people, rural development specifically covers three interrelated areas of development — economic, social and political. All three dimensions encompass the provisions of capacity and opportunity for a better living condition for rural people. In the recent years, the State Government has worked extensively for rural development by initiating relevant programmes for economic, social and political upliftment of rural people. The State Government has been working relentlessly to achieve three key

Sustainable Development Goals (SDG) — SDG 1 (No poverty), SDG 5 (Gender equality) and SDG 10 (Reduced inequality).

This chapter will discuss the rural development programmes in Bihar. The programmes include Bihar Rural Livelihood Mission (BRLM), known as JEEViKA, and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). The State Government also implemented the Pradhan Mantri Awas Yojana - Gramin (PMAY-G) to provide housing to the rural poor. The Public Distribution System (PDS) in Bihar is also discussed in this chapter, since it has substantial implications for rural development. This chapter will also focus on Panchayati Raj Institutions (PRI), one of the key institutional set-ups to carry out rural development programmes and is responsible for local governance. Finally, the distribution of Homestead land is also discussed, along with the measures of land reforms.

8.1 Bihar State Rural Livelihood Mission (JEEViKA)

Bihar Rural Livelihood Promotion Society (BRLP) is an autonomous body under the aegis of Rural Development Department of Bihar. The society is registered under the Societies Registration Act, 1860. JEEViKA is entrusted to implement various schemes of the State Government and is presently working extensively to alleviate poverty among the rural people through expanding opportunities for sustainable livelihood. JEEViKA now covers all the 38 districts of the state, with the aim to improve social and economic conditions of the rural people through strong community, institutions, social capital, financial inclusion, health and nutrition, sanitation activities and livelihood programmes.

JEEViKA has achieved remarkable success in its core interventions and ranked first in the country in terms of formation of SHGs, their federations, and financial inclusion. Till 2018-19, about 84,88,96 SHGs were formed. The SHGs have further been federated into 55,628 Village Organizations (VO) and 925 Cluster-Level Federations (CLF). The project has been able to leverage bank credit of Rs 8169 crore till 2018-19 (Table 8.1). JEEViKA is also responsible for the implementation of the Lohiya Swachha Bihar Abhiyan (LSBA) and SBM(G). JEEViKA has achieved remarkable progress for this programme through sanitation intervention. The rural households of Bihar has declared 100 percent access to toilet. The same has been updated in MIS. JEEViKA has achieved remarkable progress for this programme through sanitation intervention. Till March, 2019, a total of 1.13 crore IHHLs have been constructed across all the districts.

The State Government has launched a new scheme called ‘Satat Jivikoparjan Yojana’ (SJY) in August 2018. JEEViKA has been designated as the nodal agency for implementation of SJY, with a budgetary outlay of Rs 840.00 crore for three years. The objective of this scheme is to provide sustainable income-generating assets to extremely poor households, including those who were traditionally engaged in production and sale of country liquor or toddy before the imposition of liquor prohibition in April 2016.

Table 8.1 : Progress under JEEViKA (2015-16 to 2018-19)

Item	2015-16	2016-17	2017-18	2018-19
Number of SHGs formed	470220	610808	790411	848896
Number of VOs formed	31229	35681	46756	55628
Number of CLFs formed	318	415	706	925
Number of SHGs Credit Linked with Banks	221261	391314	587616	810426
Bank Credit Amount (Rs. crore)	1300	2993	5358	8169

Source : JEEViKA, Government of Bihar

In recent years, JEEViKA has received recognition at both national and international forums for its excellent achievements. JEEViKA received a Certificate of Appreciation and award for its outstanding performance in the category of ‘Farm Livelihoods Promotion’ under DAY-NRLM for 2017-18. Under Sustainable Livelihoods and Adaptation to Climate Change (SLACC) project, JEEViKA made its mark and received third prize in the presentation of case study competition in ‘Livelihoods India Summit 2019’. Smt. Rasuhan Khatoon, a SHG member from Muzaffarpur received National Entrepreneurship Award in the category of the best individual entrepreneur. A new initiative for canteens, called *Didi ki Rasoi* and managed by SHG members, has received support from the government departments to run canteens in some of the government hospitals and other venues. Till now, 12 outlets of *Didi Ki Rasoi* have been opened, providing cooked meal to in-patients and out patients. The Rural Retail Mart established by JEEViKA to supply grocery items to more than 650 grocery shops, owned by JEEViKA SHG members. The marts aim at providing quality products at a reasonable price to SHG members.

Under alternative banking, JEEViKA is working to provide banking services at the doorstep to rural households involving Banking Correspondent Agents of the banks. Over 600 Banking Correspondent Agents are running Custom Hiring Centres and have done a transaction of over Rs. 1243 crore. The programme also involved commercial banks and financial institutions, providing cheap insurance to the SHG members in Bihar. JEEViKA has been designated as a nodal agency

for implementation of Pradhan Mantri Suraksha Bima Yojana and Pradhan Mantri Jeevan Jyoti Bima Yojana.

Table 8.2 : Extent of Livelihood Related Activities by SHGs (March, 2019)

Interventions	Progress till March 2019
Farms Livelihoods	
Number of farmers undertaking paddy cultivation (Productivity Enhancement intervention)	464126
Number of farmers who undertook wheat cultivation	517711
Number of farmers who undertook vegetable cultivation	312626
Number of farmers who undertook kitchen gardening	559375
Off-farms and Non-farm Livelihoods	
Number of SHG members involved in Poultry intervention	182193
Number of SHG members involved in Dairy intervention	55482
Number of households involved in goat intervention	58200
Number of SHG members involved in Non-farm interventions	29422
Skill Training and Placement	
Number of Rural Youths trained (PIAs & RSETIs)	215822
Number of Rural Youths placed (PIAs, RSETIs, Job Fair etc)	254034
Vulnerability Reduction	
Number of Village Organizations received Food Security Fund	23720
Number of Village Organizations received Health Security Fund	37635
Sanitation	
Number of Individual Household Latrines (IHHL)constructed	11031793
Number of Villages declared ODF	27318

Source : JEEViKA, Government of Bihar

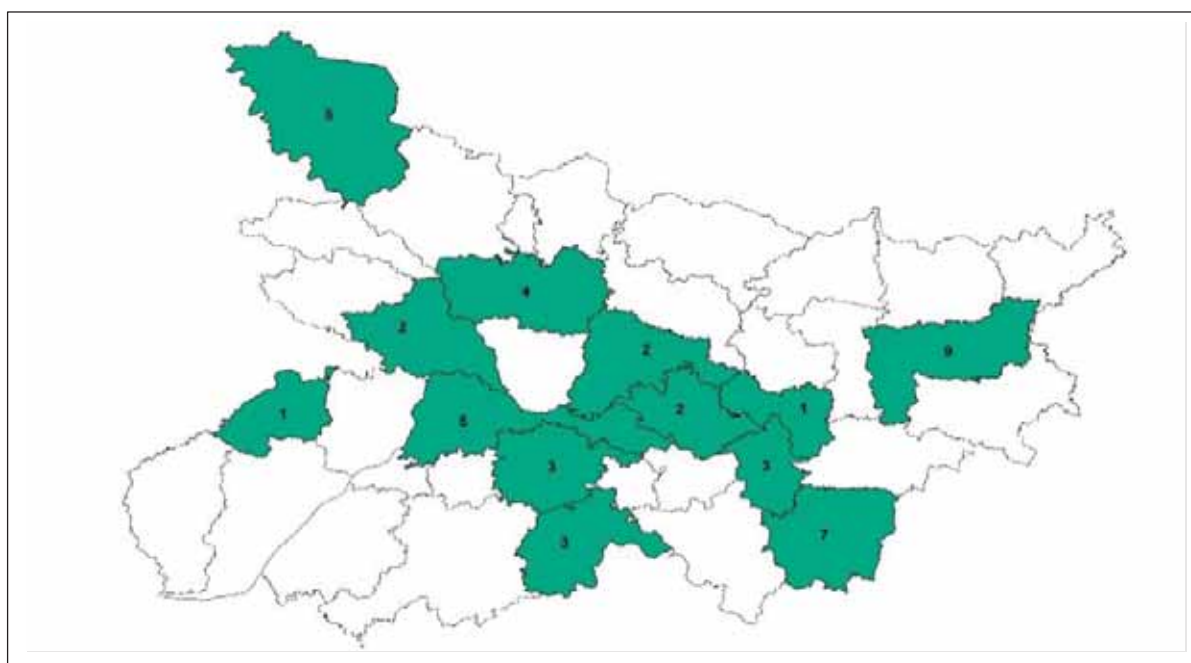
For sustainable livelihood in rural areas, JEEViKA involves people in different economic activities and promotes locally generated employment opportunities, such as cultivation, poultry and dairy, etc. Moreover, it also organises skill development training under different programmes. Over 6 lakh SHG members have undertaken agricultural interventions through different packages, like System for Rice Intensification (SRI), direct seeding in paddy, System for Wheat Intensification (SWI), zero tillage in wheat, seed replacement, etc. These interventions have certainly improved productivity which, in turn, make farming more profitable for farmers. More than 4 lakh farmers have undertaken the productivity enhancement intervention in paddy cultivation. JEEViKA also emphasized on kitchen gardening to make households nutritionally self-reliant by ensuring easy

availability of vegetables and fruits produced at the backyard or kitchen garden. Over 5.5 lakh SHG members have undertaken kitchen gardening. Moreover, large-scale production of vegetables was undertaken by over 3.1 lakh SHG members.

The details of livelihood-related activities upto March, 2019 are presented in Table 8.2. In off-farm activities, around 1.8 lakh SHG members were involved in poultry, around 55 thousand were involved in dairy, and 58 thousand in rearing of goats. In addition, JEEViKA also trains rural youth and arranges a wide range of jobs for them. Till March, 2019, a total of 2.2 lakh youth were trained and 2.5 lakh were placed/settled either by the Project Implementation Agency (PIA), or by Rural Self-employment Training Institutes (RSETIs), or through job fairs organized by JEEViKA. Moreover, SHGs have played an important role in reducing the vulnerability of rural poor by providing Food Security Fund interventions and health security interventions. The food security intervention is also vital to improve nutrition level. Besides this, an intensive behaviour change communication module on health, nutrition and sanitation are being rolled out in the entire state.

A decentralized system of State Rural Livelihood Mission (SLRM) has been initiated by JEEViKA, which focuses on community mobilization with Gram Panchayats driving the implementation through local action plans. Under this initiative, priority will be given to all Ganga Gram Panchayats in initial phases, and additional activities like tree plantation and environment safety will also be undertaken. In all, under 14 districts, 50 Gram Panchayat were selected for SLRM (Chart 8.1).

Chart 8.1 : Selected Gram Panchayat in Selected Districts for State Rural Livelihood Mission



Source : JEEViKA, Government of Bihar

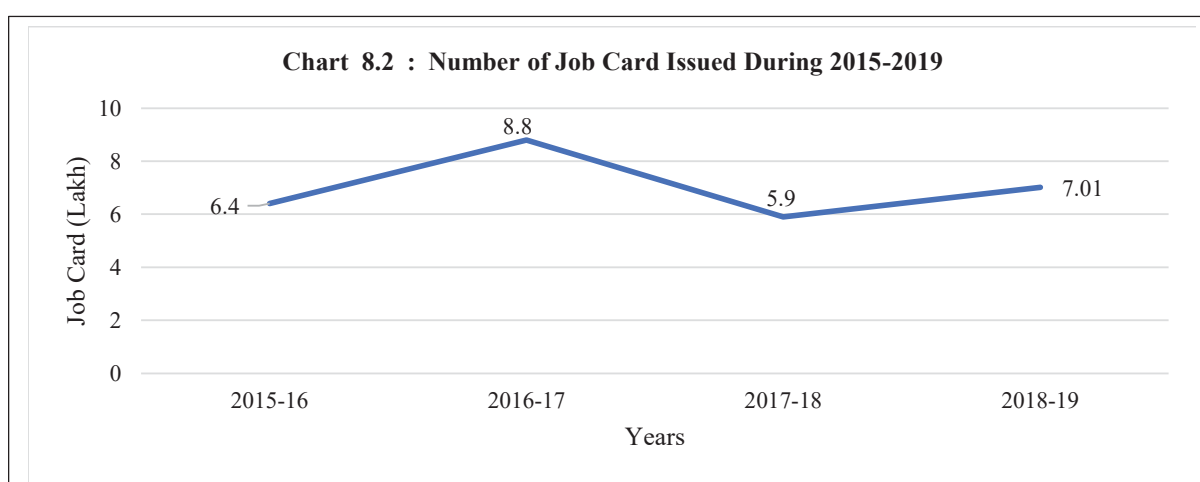
Skilling and Placement under JEEViKA

JEEViKA has done tremendous work for livelihood promotion at the grass-root level. Deen Dayal Upadhyay Grameen Kaushal Yojana (DDU-GKY) and Roshni Project and RSETIs are some important initiatives undertaken by the JEEViKA.

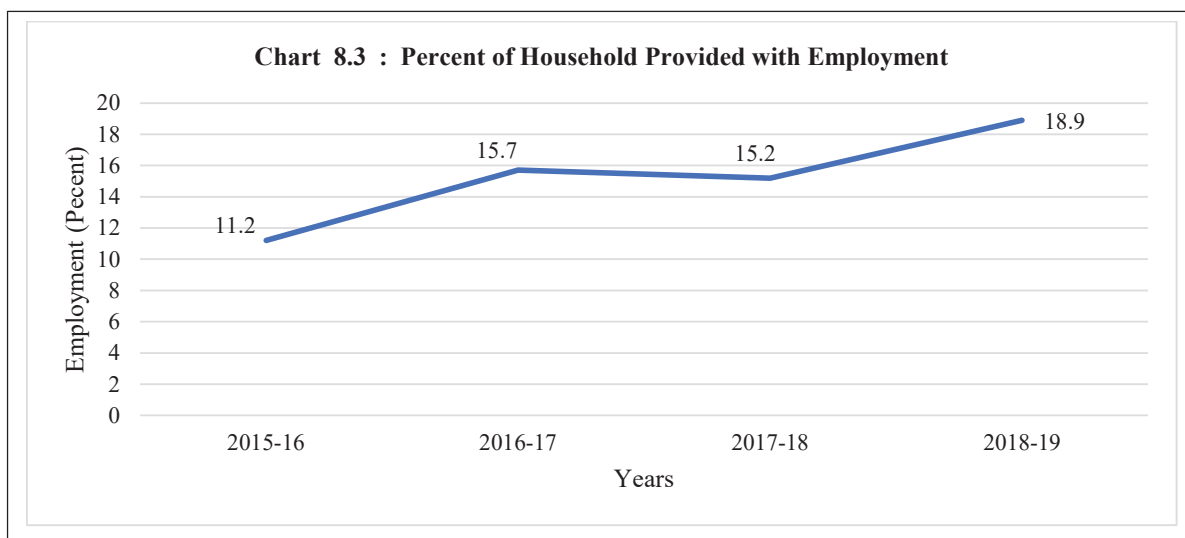
To provide sustainable employability to youths from rural and left-wing extremism affected areas, 61 new training centres were established in different districts of Bihar. The training programme aimed at providing skill development training to native and migrated youth. During 2018-19, a total of 10,800 candidates were trained, out of which 8547 were placed in different sectors.

8.2 Mahatma Gandhi National Rural Employment Guarantee Scheme

The Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MGNREGA) is a social security measure to guarantee the right to work for at least one member of a family for 100 days annually. The aim of the Act is to enhance livelihood security in rural areas by providing 100 days of guaranteed wage employment to every household whose adult family member volunteers to participate in unskilled or manual work. The works include rejuvenation of local natural resources, and creation of productive assets in the rural areas. MGNREGS provides purchasing power to the rural poor and thereby stimulates the local economy. The scheme also helps in achieving women empowerment and restrict labour migration. Since its inception in 2005, the performance of MGNREGA has been commendable. Chart 8.2 presents the number of job cards issued to households during 2015-2019. The highest number of job cards was issued in 2016-17 (8.8 lakh), while the lowest was issued in 2017-18 (5.9 lakh), which again increased to 7.01 lakh in 2018-19.



Source : Department of Rural Development, GoB



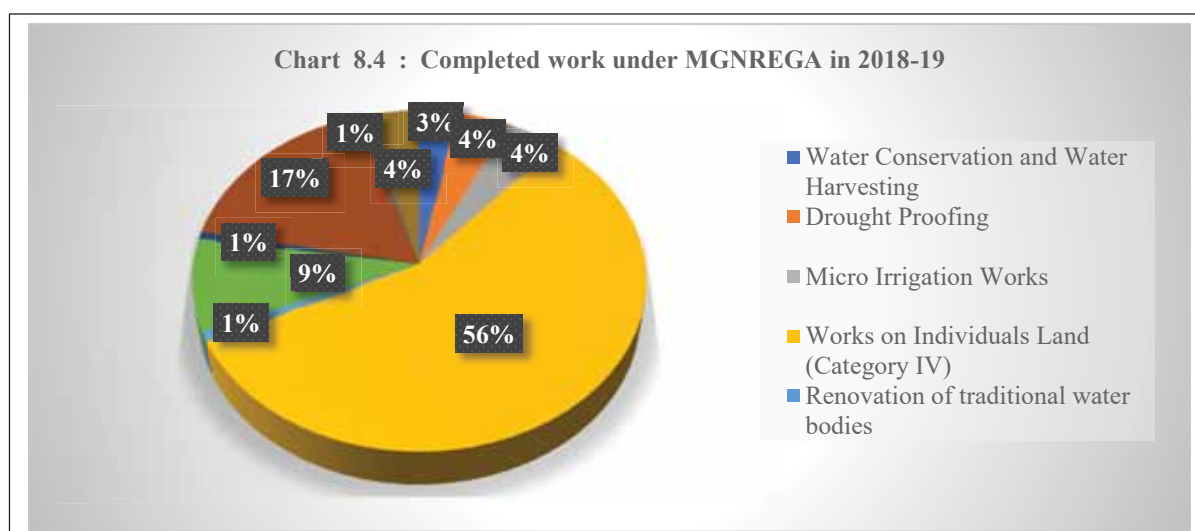
Source : Department of Rural Development, GoB

Given the fact that there has been a fluctuation in the issuance of job cards to households, the number of households provided with actual employment is an important indicator of the performance of MGNREGS. This data is provided in Table 8.3 and Chart 8.3. From Table 8.3, one can easily observe that both the numbers of households with job card of households which had obtained employment have increased consistently. Between 2017-18 and 2018-19, the number of job cards issued increased from 148 lakh to 155 lakh. Similarly, the number of households receiving employment has increased by about 32 percent from 22 lakh in 2017-18 to 29 lakhs in 2018-19. The number of households which obtained 100 days of employment has also increased in the last three years. The number of person-days generated has again increased three and a half times, from 352 lakh person-days in 2014-15 to 1234 lakh person-days in 2018-19. MGNREGA has an in-built mechanism to ensure participation of women in the total employment created. In Bihar, the share of women's participation was higher than the statutory requirement of one-third of the total person-days created. During the last five years, the share of women in the total employment created has increased, and it stood at 51.8 percent in 2018-19. However, the average number of days of employment per household has been fluctuating over the years. It was the lowest in 2014-15 (34.0 mandays) and the highest in 2015-16 (45.1 mandays). The primary reason for such low and fluctuating average number of days of employment per household has been the drop-out of workers, without completing the mandatory 100 days of work. The fund utilization was low in earlier years, but increased to around 90 in 2017-18 and 2018-19.

Table 8.3 : Performance of MGNREGA (2014-15- to 2018-19)

Year	2014-15	2015-16	2016-17	2017-18	2018-19
No. of households Job Cards issued (lakh)	127.2	133.6	142.4	148.3	155.3
No. of households provided with employment (lakh)	10.4	14.9	22.3	22.5	29.2
No. of households obtaining 100 days of employment (lakh)	0.3	0.6	0.2	0.2	0.2
Employment generated (lakh person-days)	352	670.9	858.4	817.2	1234.1
Percentage share of women in total employment generated	37.3	40.8	43.8	46.6	51.8
Average employment per household (person-days)	34.0	45.1	37.4	36.4	42.2
Number of completed works (lakh)	1.2	1.1	0.8	1.1	1.8
Fund utilized (percentage) as per MIS	65.7	81.6	89.9	91.0	90.0
No. of accounts opened (lakh)	29.4	34	39.2	66.9	72.8

Source : Department of Rural Development, GoB



Source : Department of Rural Development, GoB

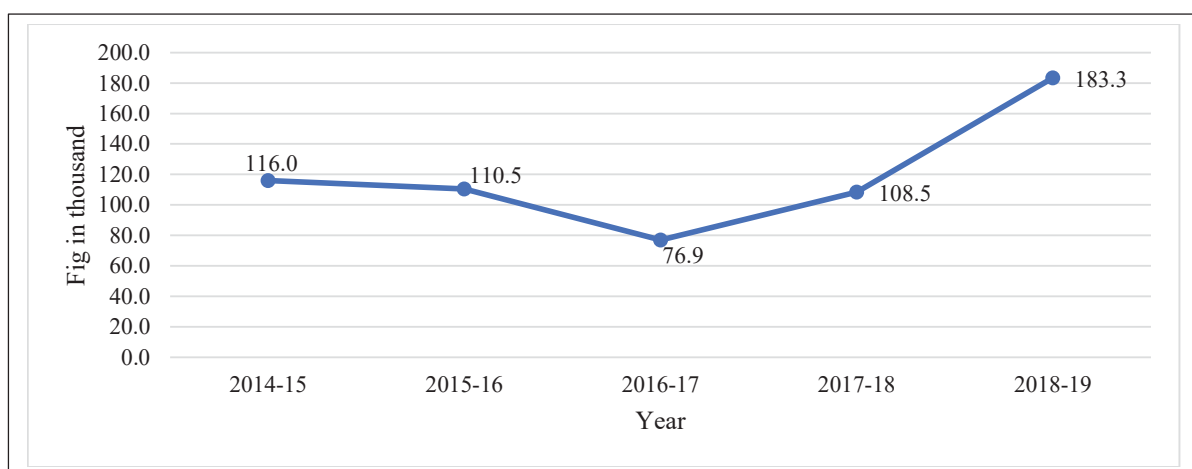
Over the years, the number of completed works under MGNREGS has increased in Bihar. Chart 8.4 suggests that the total number of completed works under MGNREGS increased from 116.0 thousand in 2014-15 to 183.3 thousand in 2018-19. A major slump in the number of completed works was observed in 2016-17 at 76.9 thousand. The district-wise details of MGNREGS are presented in Table A 8.1 (Statistical Appendix). There has been wide variation in the implementation of MGNREGA in the districts. The maximum number of job cards were issued in East Champaran (7.2 lakh), followed by Muzaffarpur (6.7 lakh), and Vaishali (6.5 lakh) in 2018-19. The minimum number of job cards was issued in Sheohar, along with Jehanabad, Arwal and Sheikhpura. In each of these districts, the number of job cards issued was less than 1 lakh.

Table 8.4 : Category-wise Completed work under MGNREGS (2014-15 to 2018-19)

Categories	2014-15	2015-16	2016-17	2017-18	2018-19
Water Conservation and Water Harvesting	2464 (2.1)	3234 (2.9)	3979 (5.2)	6651 (6.13)	5464 (3.01)
Drought Proofing	32201 (27.8)	42685 (38.6)	16352 (21.3)	7401 (6.82)	7597 (4.1)
Micro Irrigation Works	2274 (2.0)	3852 (3.5)	5501 (7.2)	9689 (8.93)	7700 (4.2)
Works on Individuals Land	4227 (3.6)	6612 (6.0)	6449 (8.4)	21162 (19.50)	103518 (56.5)
Renovation of traditional water bodies	825 (0.7)	1058 (1.0)	1324 (1.7)	1831 (1.69)	1638 (0.9)
Land Development	4312 (3.7)	6928 (6.3)	8798 (11.4)	16695 (15.38)	15897 (8.7)
Flood Control and Protection	395 (0.3)	640 (0.6)	651 (0.8)	1354 (1.25)	1277 (0.7)
Rural Connectivity	13847 (11.9)	20081 (18.2)	22494 (29.3)	32839 (30.26)	31269 (17.0)
Any Other Activity	55438 (47.8)	25447 (23.0)	11347 (14.8)	1563 (1.4)	1418 (0.8)
Rural Infrastructure	—	—	—	(0.00)	10 (0.1)
Bharat Nirman Rajeev Gandhi Sewa Kendra	—	—	—	198 (0.2)	109 (0.1)
Coastal Areas	—	—	—	4 (0.00)	0
Fisheries	—	—	—	11 (0.01)	8 (0.00)
Play ground	—	—	—	21 (0.02)	26 (0.01)
Rural Drinking Water	—	—	—	28 (0.03)	74 (0.04)
Rural Sanitation	—	—	—	9076 (8.4)	7339 (4.0)
Total	115983 (100.0)	110537 (100.0)	76895 (100.0)	108523 (100.0)	183344 (100.0)

Source : Department of Rural Development, GoB

Chart 8.5 : Total Number of Completed Works under MGNREGS (2014-2019)



Source : Department of Rural Development, GoB

The share of SC households among all job cardholders has not changed much in the last three years. It was 24.6 percent in 2017-18, and 23.8 percent in 2018-19. The share of households with job cards demanding employment increased from 19.7 percent in 2017-18 to 23.6 percent in 2018-19. In Arwal, the demand was the highest where 45.5 percent demanded employment in 2017-18, followed by Jehanabad (37.8 percent) and Sheohar (36.9 percent). On the other hand, West Champaran showed the lowest demand for employment.

The utilization of fund is another important indicator to assess the success of the implementation of schemes. District-wise figures for fund utilization in MGNREGA during the last three years are shown in Table A 8.2 (Statistical Appendix). The fund utilization during the last three years was more than 90 percent in most of the districts.

8.3 Pradhan Mantri Awas Yojana Gramin (PMAY-G)

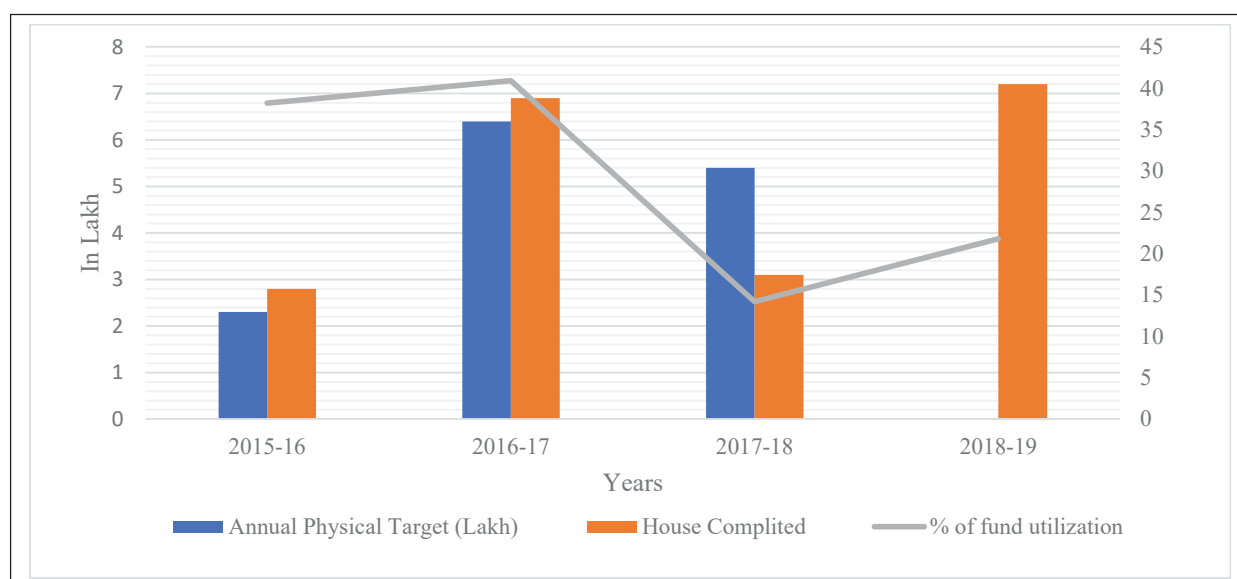
Pradhan Mantri Awas Yojana Gramin (PMAY-G) previously known Indira Awaas Yojana (IAY) was launched by the Central Government to provide affordable housing for all in the rural areas by 2022. The Socio-economic and Caste Census is considered to be basis for the identification of the beneficiaries of the scheme. To achieve the target, a financial assistance is provided to the homeless households and those with old houses to construct pucca houses. The financial assistance for the beneficiaries living in plains is up to Rs 1.20 lakh, and for the residents in the hilly regions, it is upto Rs 1.30 lakh. Economically Weaker Section (EWS), Low Income Group (LIG), Middle Income Group I (MIG I), Middle Income Group II (MIG II), Women, SC/ST and OBC households are the eligible beneficiaries of the scheme. In Bihar, PMAY-G is an important rural development scheme, as a large share of the population is living in rural areas. Table 8.5 depicts the performance of PMAY-G scheme during 2015-2019. It is also observed in Table 8.5 that the physical targets of PMAY-G have been achieved in all the years, except 2017-18.

Table 8.5 : Performance of IAY/PMAY-G Scheme (2015-16 to 2018-19)

Year	Annual Physical Target (Lakh)	House Completed (Lakh)			Fund Utilization					
		PMAY-G	IAY	Total	Total Expenditure			SC & ST		
					(Rs. in Lakh)			(Rs. in Lakh)		
					PMAY-G	IAY	Total	PMAY-G	IAY	Total
2015-16	2.33	—	2.8	2.8	—	127594	127594	—	48713	48713
2016-17	6.37	—	6.9	6.9	291	61961	62252	158	25316	25474
2017-18	5.38	0.3	2.9	3.2	324341	65207	389548	131037	29467	160504
2018-19	—	5.8	1.3	7.1	560296	26502	586797	115545	12112	127658

Source : Department of Rural Development, GoB

Chart 8.6 : Performance of IAY/PMAY-G Scheme



Source : Department of Rural Development, GoB

8.4 Public Distribution System

The Public Distribution System (PDS) is the largest distribution scheme of its kind in the world, established by the Central Government. To ensure the food security of the poor and marginalized population, the scheme was started under the Union Ministry of Consumer Affairs, Food and Public Distribution. The main objective of the scheme is providing affordable and accessible essential food and non-food items to the poor. The PDS is to provide under the Essential Commodities Act 1955, which regulates the production, supply and distribution of essential commodities, such as foodgrains and oils. The Food Corporation of India (FCI) procures foodgrains from farmers at the Minimum Support Price (MSP), stores it, and then distributes it among the people through the PDS.

The National Food Security Act (NFSA), 2013 was passed to make the right to food as a legal right. The Act classifies the entire population into three categories — no entitlement households, entitlement households and Antodaya Anna Yojana households.

The social background of PDS dealers in Bihar is shown in Table 8.6. The total number of PDS dealers in the state is around 42,520 in 2018. The largest share of PDS dealership in 2018 was with the Backward Castes (27.8 percent), followed by the General Castes (19.9 percent). The share of

women has been increasing consistently over the years and it stood at 8.6 percent in 2018. The share of the women self-help group, other self-help groups, and handicapped remained unchanged between 2014 and 2018.

Table 8.6 : Social Background of PDS Dealers (2015 to 2018)

Social Groups of PDS Dealer	No. of PDS Outlets				Percentage			
	2015	2016	2017	2018	2015	2016	2017	2018
Scheduled Caste	6891	6905	6773	7103	16.4	16.4	16.3	16.7
Scheduled Tribes	327	331	336	319	0.8	0.8	0.8	0.8
Backward Caste	12463	12337	11897	11801	29.6	29.3	28.7	27.8
Extremely Backward Caste	3109	3203	3298	3632	7.4	7.6	8.0	8.5
Minority	2812	2806	2659	2705	6.7	6.7	6.4	6.4
Women	3361	3344	3340	3640	7.0	8.0	8.1	8.6
Women Self-Help Groups	209	204	184	208	0.5	0.5	0.4	0.5
Other Self-Help Groups	105	102	108	103	0.3	0.2	0.3	0.2
Co-operative Society (Ex-Army Personnel)	4494	4469	4406	4365	10.7	10.6	10.6	10.3
Handicapped	180	178	181	186	0.4	0.4	0.4	0.4
General Category	8190	8180	8301	8458	19.4	19.5	20.0	19.9
Total	42141	42059	41483	42520	100.0	100.0	100.0	100.0

Source : Department of Food and Consumer Protection, GoB

The district-wise distribution of PDS dealers by social background is given in Table A 8.3 (Statistical Appendix). Among all the districts, Gaya has the largest share of SC/ST PDS dealers (30.0 percent), followed by Begusarai (27.3 percent). The share of SC/ST PDS dealers in Munger was the lowest (10.3 percent). Arwal (51.7 percent) and Munger (49.1 percent) have the largest share of BC/EBC PDS dealers among all the districts; whereas Kishanganj (26.4 percent), Begusarai (27.3 percent) and Araria (27.9 percent) accounted for the lowest share for BC/EBC dealers of PDS. Araria (21.9 percent) and Purnea (16.2 percent) have the highest share for Minority PDS dealers. As regards women PDS dealers, their share was the highest in Darbhanga (19.5 percent), followed by Saran (16.5 percent). The districts of Aurangabad, Supaul and Kishanganj have the lowest share of Women PDS dealers, at around four percent.

Under the PDS, there is a provision to distribute both food and non-food items to the poor people. As such, sugar and kerosene are also distributed under PDS, but wheat and rice are the main elements. The year-wise allotment and lifting of wheat and rice are presented in Table 8.7. The total allotment of wheat and rice has increased from 4914.9 thousand tonnes in 2014-15 to 5220.2 thousand tonnes in 2018-19. The allotment of rice has increased by 183 thousand tonnes and allotment of wheat has increased by 122 thousand tonnes between 2014-15 and 2018-19. It is worthwhile to note that the State Government has been fully utilising the allocation of foodgrains. During the last five years, the lifting percentage has always been above 95 percent. In 2018-19, it was as high as 98.9 percent.

Table 8.7 : Allotment and Lifting of Wheat and Rice under PHH+AAY (2014-15 to 2018-19)

(Fig. in '000, tonnes)

Year	Total allotment (PHH+AAY)			Total lifting (PHH+AAY)			Total lifting in % (PHH+AAY)
	Wheat	Rice	Total	Wheat	Rice	Total	
2014-15	1966.0	2948.9	4914.9	1871.0	2828.4	4699.4	95.6
2015-16	2096.5	3144.6	5241.1	2053.6	2987.7	5041.3	96.2
2016-17	2197.4	3296.1	5493.5	2087.1	3165.0	5252.1	95.6
2017-18	2187.7	3281.6	5469.3	2135.2	3205.1	5340.3	97.6
2018-19	2088.1	3132.1	5220.2	2059.4	3104.3	5163.7	98.9

Source : Department of Food and Consumer Protection, GoB

The district-wise details of allotment and lifting of wheat and rice are given in Table A8.4 (Statistical Appendix). In 23 districts, 100 percent lifting of rice was observed in 2018-19. Similarly, in 22 districts, 100 percent of wheat lifting has been observed. Most of the districts report excellent performance in lifting wheat and rice, except Buxar (89.9 percent) and Munger (84.8 percent).

8.5 Panchayati Raj Institutions

Bihar is one of the leading states in implementing panchayati raj for better representation of socially and economically deprived rural population in the development process. In Bihar, there is

a reservation for Scheduled Castes (SC) and Extremely Backward Castes (EBC) in PRIs. Among all categories, 50 percent of seats are reserved for women members. The details about the structure of PRIs is given in Table 8.8. Currently, there are 38 Zila Parishad (ZP) at the district level, 534 Panchayat Samiti (PS) at the Block level, and 8386 Gram Panchayat (GP) at the village level. There are 1161 ZP members, 11,497 PS members and 1,14,691 GP members. Apart from the elected members, there are some functionaries who are employed to help the functioning of PRIs. The State Government recruits these functionaries to support the activities related to self-governance. It is clear that, at the district and block levels, there is an adequate number of functionaries, but there is a need to employ more number of them at the village level. (Table 8.9).

Table 8.8 : Overview of Panchayati Raj Institutions in Bihar

Item	No.	Item	No.
Zila Parishad	38	Gram Panchayat Secretary	3701
Panchayat Samiti	534	Nyaya Mitra	6947
Gram Panchayat	8386	Gram Kachahari Secretary	7474
Gram Panchayat Members	114691	Zila Panchayati Raj Officers	38
Panchayat Samiti Members	11497	Block Panchayati Raj Officers	528
Zila Parishad Members	1161	Gram Kachahari Members	114691

Source : Department of Panchayati Raj, GoB

The grants for the PRIs are based on the recommendation of the Fifth State Finance Commission (2015-20). According to this, 2.75 percent of the actual expenditure of the State Government and 8.50 percent of state's own tax revenue are transferred to the PRIs each year. The shares of total GP, PS and ZP in the total transferred fund are 70 percent, 10 percent and 20 percent respectively. The expenditure of PRIs at all three tiers has been presented in Table 8.9. There has not been a consistent pattern in expenditure at all three levels of PRIs. The total expenditure of the PRIs during 2018-19 was around Rs 780 crore, which is Rs 527 crore more than the expenditure in 2014-15. At the GP level, there has been a reduction in expenditure in 2018-19 as compared to the previous year. At the PS level, a marginal increase in expenditure (Rs 1.10 crore) has been observed during the same period. In 2018-19, the expenditure was Rs. 27.70 crore at the PS level.

Table 8.9 : Level of Expenditure in PRIs at Different Levels (2014-15 to 2018-19)

(Rs Lakh)

Head	2014-15	2015-16	2016-17	2017-18	2018-19
Gram Panchayat					
1. BRGF	27821	0	0	0	0
2. RGPSA	0	0	5091.1	0	0
3. MMGY	1084	0	0	0	0
4. Union Finance Commission Grants	107105	237627	314208	363039	419971
5. State Finance Commission Grants	0	0	135453.7	166407.9	167374.4
6. Mukhya Mantri Saat Nishchay Yojana	0	0	62000	162315.5	90000
7. Construction of Panchayat Sarkar Bhawan	36863	12269	46222	5093	3553.5
8. Contingency Grant	0	321	4035	4852	4141.5
9. Payment and Allowance to GP members/ functionaries	15383	8172	9161.7	12088.1	13850.2
Total	188256	258389	576171.4	713795.5	698891.3
Panchayat Samiti					
1. BRGF	7949	0	0	0	0
2. RGPSA	0	0	0	0	0
3. Union Finance Commission Grants	30662	2829	0	0	0
4. State Finance Commission Grants	0	0	18729.8	22884.1	24695.4
5. Allowance to PS members	1946	1947	2140.7	2717.9	3004.9
6. Mukhya Mantri Saat Nishchay Yojana	0	0	0	0	0
Total	40557	4776	20870.5	25602	27700.3
Zila Parishad					
1. BRGF	3975	227	0	0	0
2. RGPSA	0	0	0	0	0
3. Union Finance Commission Grants	15287	1414	0	0	0
4. State Finance Commission Grants	5026	0	47456	56164.1	53473
5. Allowance to ZP members	431	432	409.4	530.8	580.1
6. Mukhya Mantri Saat Nishchay Yojana	0	0	0	0	0
Total	24719	2073	47865.4	56694.8	54053.1
Grand Total	253532	265238	644907.2	796092.3	780644.7

Source : Department of Panchayati Raj, GoB

8.6 Distribution of Homestead Land

Better living conditions, including good housing, is an important part of the overall wellbeing of a population. Towards providing adequate housing facilities in rural areas, the Central Government is presently implementing Prime Minister Awas Yojana-Gramin (PMAY-G). The State

Government is also committed to provide adequate housing facility to the rural population, particularly those who are poor. As such, the State Government is presently providing 5 decimals of land to all landless households for construction of a house under its programme of Abhiyan Basera. The beneficiaries include households from the following categories — Backward Castes, Extremely Backward Castes, Scheduled Castes, Scheduled Tribes, and Mahadalits.

Table 8.10 : Category-wise Eligible Households and Beneficiaries of Abhiyan Basera (2017-18)

	Total Surveyed Households	Beneficiary Households	% of Beneficiaries	Remaining Households
Backward Caste I	17176	10245	59.65	6931
Backward Caste II	10182	5460	53.62	4722
Schedule Caste	12479	6338	50.79	6141
Schedule Tribe	3903	2166	55.50	1737
Mahadalit	67340	42187	62.65	25153
Total	111080	66396	59.77	44684

Source : Department of Revenue and Land Reforms, GoB

Under Abhiyan Basera, a survey was conducted in 2014 to identify eligible beneficiaries of the scheme. It has identified 1,11,080 households belonging to different categories, and till 2017-18, 66,396 households were provided with required homestead land. This accounts for 59.7 percent of all targeted households. The present coverage of the scheme for different social categories — Extremely Backward Castes (53.0 percent), Scheduled Castes (50.8 percent), Scheduled Tribes (55.5 percent), and Mahadalits (62.6 percent).

APPENDIX

Table A 8.1 : District-wise Progress of MGNREGS (2016-17 to 2018-19)

(Fig in lakh)

District	No. of households issued job cards (lakh)			Percentage share of SC households among households with job cards			Percentage of households with job cards demanding employment		
	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
Patna	5.5	5.7	5.9	25.3	25.4	25.1	16.9	12.0	13.3
Nalanda	4.3	4.4	4.5	36.4	36.72	36.3	20.7	15.1	16.4
Bhojpur	3.5	3.6	3.7	32.7	32.51	31.7	26.5	16.6	16.4
Buxar	2.8	2.8	2.8	29.7	29.42	29.0	27.8	24.9	22.8
Rohtas	3.6	3.7	3.8	31.2	30.9	30.2	26.1	17.4	19.8
Kaimur	2.2	2.2	2.3	37.2	36.63	35.5	27.7	18.8	24.6
Gaya	5.9	6.0	6.2	55.1	54.63	53.9	18.8	18.2	18.8
Jehanabad	1.5	1.5	1.6	30.3	29.73	29.6	50.0	33.6	37.8
Arwal	1.1	1.1	1.2	27.7	25.03	22.9	52.4	42.7	45.5
Nawada	4.2	4.5	4.6	30.4	31.46	30.6	23.5	19.3	25.3
Aurangabad	3.6	3.8	4.0	41.4	41.13	40.2	29.0	23.4	30.0
Saran	5.2	5.4	5.9	24.8	24.36	22.9	21.9	17.4	23.1
Siwan	3.1	3.1	3.2	18.7	18.61	18.3	19.1	14.0	16.3
Gopalganj	3.5	3.4	3.4	19.5	18.9	18.5	20.6	16.7	19.0
W. Champaran	4.8	5.1	5.2	18.0	17.68	17.4	27.2	19.0	11.5
E. Champaran	6.5	6.8	7.1	18.9	18.29	17.4	20.3	14.7	22.1
Muzaffarpur	6.3	6.1	6.7	23.0	22.25	21.4	17.4	13.0	16.3
Sitamarhi	4.6	5.0	5.3	21.5	20.13	19.1	28.8	25.4	28.2
Sheohar	0.9	0.9	1.0	19.8	18.68	17.3	60.1	26.8	36.9
Vaishali	5.8	6.0	6.4	32.4	30.99	29.5	16.2	18.4	25.0
Darbhanga	5.1	5.7	6.1	25.1	24.15	22.6	26.7	19.4	30.7
Madhubani	5.4	5.6	5.9	21.5	20.86	19.9	21.2	13.5	18.5
Samastipur	5.1	5.8	6.2	29.4	28.18	26.4	29.8	20.8	31.9
Begusarai	3.4	3.5	3.7	22.4	21.47	20.4	19.7	17.2	18.7
Munger	2.0	2.1	2.2	16.4	16.01	15.5	25.7	23.5	29.3
Sheikhpura	0.9	1.0	1.0	36.2	36.23	35.6	30.9	21.5	19.9
Lakhisarai	1.7	1.8	1.9	23.2	23.05	22.4	29.4	27.0	31.4
Jamui	2.8	3.0	3.1	24.7	23.80	22.8	34.1	27.3	30.4
Khagaria	1.9	2.1	2.2	24.7	23.84	22.6	21.2	16.8	17.8
Bhagalpur	4.1	4.3	4.6	13.2	12.74	12.1	24.8	17.8	23.3
Banka	3.0	3.2	3.3	15.8	15.59	15.3	34.5	23.8	25.3
Saharsa	3.8	4.0	4.1	21.1	20.45	19.8	41.1	30.4	35.5
Supaul	3.3	3.4	3.6	21.3	25.06	24.6	29.9	19.5	24.6
Madhepura	3.6	3.8	3.9	24.2	22.89	21.6	45.0	29.6	34.4
Purnea	4.8	5.0	5.3	17.6	16.77	16.0	25.2	20.7	25.8
Kishanganj	2.6	2.7	2.8	9.7	9.33	9.2	32.1	25.7	24.5
Araria	4.5	4.8	5.0	16.7	16.0	17.4	35.1	20.1	27.2
Katihar	5.0	5.3	5.5	15.3	14.59	14.0	29.9	20.4	22.8
Bihar		148.3	155.3		24.65	23.8		19.7	23.6

Source : Department of Rural Development, GoB

Table A 8.1 : District-wise Progress of MGNREGS (2016-17 to 2018-19) (Contd.)

District	Household getting 100 days of employment as percentage of those obtaining employment			Person-days of employment generated (lakh)			Percentage share of women in total employment generated		
	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
Patna	0.9	0.1	1.1	24.3	17.4	28.2	48.6	47.6	52.0
Nalanda	1.0	0.6	1.2	25.4	19.6	28.2	50.5	51.6	58.7
Bhojpur	0.7	0.2	0.4	15.9	13.1	17.9	34.2	39.4	43.6
Buxar	0.5	0.6	0.6	18.8	19.4	20.5	34.5	35.6	39.5
Rohtas	0.2	0.2	0.5	184	14	23.6	30.4	34.3	40.2
Kaimur	0.9	1.3	1.3	14.8	12.5	21.3	33.7	37.4	42.4
Gaya	0.2	0.2	0.6	28.0	25.9	39.9	55.1	55.1	59.0
Jehanabad	2.5	2.1	2.6	18.2	20.4	26.2	44.7	45.1	46.9
Arwal	1.0	0.4	0.7	12.4	14.4	20.9	40.2	43.0	44.8
Nawada	0.4	0.9	1.6	25.1	25.8	47.3	53.1	54.5	56.0
Aurangabad	1.9	2.9	3.3	31.0	32.2	48.4	35.5	38.2	43.2
Saran	2.1	2.8	3.1	38.8	34.9	57.5	28.7	34.8	41.9
Siwan	1.1	1.2	1.0	14.9	11.5	17.7	30.4	37.1	46.9
Gopalganj	0.7	0.6	0.4	22.2	18.2	22.3	30.8	34.6	41.9
W. Champaran	0.5	0.3	0.1	29.9	22	24.1	34.7	39.8	66.7
E. Champaran	0.4	0.5	0.7	38.0	33.9	57	35.7	39.0	45.4
Muzaffarpur	0.4	0.5	0.5	23.1	21.1	23.2	41.2	44.6	49.5
Sitamarhi	0.2	0.3	0.3	25.6	31.3	39.6	44.2	47.1	49.6
Sheohar	0.3	0	0.4	11.0	7.4	13.3	44.2	46.1	51.1
Vaishali	0.1	0.5	0.6	24.5	28.9	49.3	45.0	46.7	52.7
Darbhanga	0.4	0.1	0.2	29.2	30.3	51	49.9	51.0	57.5
Madhubani	0.2	0.3	0.3	25.9	18.6	34.6	50.6	52.3	58.1
Samastipur	1.3	2	1.2	35.8	41.9	66.5	48.3	51.4	57.9
Begusarai	1.3	1.4	1.0	13.7	16.3	23	57.0	55.6	58.4
Munger	0.6	0.3	0.9	12.2	14.8	25.6	44.4	47.8	50.8
Sheikhpura	0.7	0.4	0.4	8.7	6.7	8.3	54.1	51.4	56.6
Lakhisarai	0.2	0.2	1.0	14.8	17.1	25.5	49.6	50.7	53.9
Jamui	0.2	0.4	0.7	19.8	23.8	33.7	47.1	50.3	53.6
Khagaria	0.32	0.2	0.1	7.4	7.8	8.9	57.8	59.3	65.1
Bhagalpur	0.6	0.9	1.1	220	21.8	36.6	39.1	40.9	45.4
Banka	0.3	0.3	0.2	23.2	20.8	26.6	48.4	49.3	52.0
Saharsa	0.3	0.1	0.3	39.0	34.3	51.3	50.4	52.8	56.0
Supaul	0.4	0.3	0.5	19.3	16	27.6	46.9	49.6	53.4
Madhepura	0.7	0.9	0.1	36.3	36.7	40.5	499	51.6	53.3
Purnea	0.1	0.4	0.7	24.4	26.6	47.8	49.2	53.5	56.8
Kishanganj	1.1	0.8	0.7	20.0	19	24.5	42.4	46.3	53.0
Araria	0.2	0.1	0.2	22.0	15.9	31.7	43.5	47.9	52.5
Katihar	0.2	0.1	0.1	24.7	24.9	35.4	48.1	50.1	55.9
Bihar	0.6	0.7	0.8	858.4	817.2	1234.1	43.8	46.6	51.8

Source : Department of Rural Development, GoB

Table A 8.2 : District-wise Financial Progress under MGNREGS (2016-17 to 2018-19)

(Rs in Lakh)

District	2016-17			2017-18			2018-19		
	Funds available	Funds utilized	Percentage of utilization	Funds available	Funds utilized	Percentage of utilization	Funds available	Funds utilized	Percentage of utilization
Patna	6764.6	3077.5	45.5	8817.4	5310.2	60.2	9772.1	6111.5	62.5
Nalanda	6544.1	6050.3	92.5	7317.7	7003.0	95.7	6769.5	6444.9	95.2
Bhojpur	4381.3	3949.0	90.1	4841.6	4354.6	89.9	5051.8	4562.5	90.3
Buxar	8805.1	8307.8	94.4	8208.6	7630.8	93.0	5763.5	5130.5	89.0
Rohtas	4946.9	4007.6	81.0	5833.6	4899.3	84.0	6888.9	6401.8	92.9
Kaimur	4181.5	3828.2	91.6	4861.2	4232.9	87.1	6194.5	5691.1	91.9
Gaya	8078.1	6304.4	78.0	10888.6	8971.2	82.4	10836.8	9237.8	85.2
Jehanabad	5010.9	4844.1	96.7	6638.7	6447.4	97.1	9542.4	6234.5	65.3
Arwal	3322.0	3282.0	98.8	5541.0	5414.2	97.7	4511.1	4426.3	98.1
Nawada	6599.5	6405.5	97.1	8527.3	8311.0	97.5	10812.5	10536.7	97.4
Aurangabad	8563.5	7769.3	90.7	12703.0	11771.2	92.7	11069.9	10217.5	92.3
Saran	10545.1	9792.7	92.9	15947.6	15016.1	94.2	15183.7	14234.0	93.7
Siwan	4367.2	3709.5	84.9	4695.4	4017.7	85.6	4976.6	4387.1	88.2
Gopalganj	6720.0	6212.6	92.4	7917.8	7341.1	92.7	6589.4	6152.2	93.4
W. Champaran	6937.3	6244.1	90.0	7373.5	6668.0	90.4	6628.8	5875.3	88.6
E. Champaran	10682.5	9938.0	93.0	13155.1	12424.6	94.4	18428.8	14282.9	77.5
Muzaffarpur	6058.4	4315.9	71.2	7313.4	5416.4	74.1	8564.2	6423.6	75.0
Sitamarhi	7165.6	6101.6	85.2	11047.0	10096	91.4	10821.6	10028.5	92.7
Sheohar	4193.7	3708.6	88.4	3913.6	3431.5	87.7	4197.0	3688.5	87.9
Vaishali	6101.3	5506.7	90.3	11895.9	11116.3	93.4	13731.4	13104.2	95.4
Darbhanga	8123	6941.8	85.5	13022.6	11867	91.1	14567.9	13335.8	91.5
Madhubani	7626	7106.8	93.2	8610.9	8075.9	93.8	9883.8	9453.5	95.6
Samastipur	11260.6	10140.2	90.1	14820.7	13628	92.0	17793.2	16572.1	93.1
Begusarai	6668.7	6144.9	92.1	9057.9	8463.5	93.4	10300.4	9757.9	94.7
Munger	3148.1	2790.4	88.6	5638.7	5385.1	95.5	7772.9	7564.8	97.3
Sheikhpura	2215	2160.1	97.5	2345.5	2274.8	97.0	2091.1	2020.0	96.6
Lakhisarai	3269.5	3121.2	95.5	6585.5	6422.8	97.5	6672.3	6521.1	97.7
Jamui	6301.9	6137.5	97.4	8668.4	8468.1	97.7	9753.9	9582.9	98.2
Khagaria	1938.0	1822.5	94.0	2734.6	2548.6	93.2	2253.4	2158	95.8
Bhagalpur	5773.6	5310.3	92.0	8465.6	8066.3	95.3	11428.1	10930.4	95.6
Banka	5893.2	5492.1	93.2	6939.3	6550.1	94.4	7520.8	7004.9	93.1
Saharsa	12280.9	11942.1	97.2	12079	11820.7	97.9	10244	9885.5	96.5
Supaul	7173.0	5310.4	74.0	7879.4	5965.9	75.7	8755.2	6867.0	78.4
Madhepura	7558.8	7250.1	95.9	12468.4	11990.5	96.2	10628.3	10281.2	96.7
Purnea	7598.9	6483.7	85.3	9793.7	8634.0	88.2	14462.8	13099.4	90.6
Kishanganj	3953.4	3644.0	92.2	6149.3	5705.1	92.8	6030.5	5553.2	92.1
Araria	6570.4	5381.3	81.9	6842.4	5628.9	82.3	9156.6	7870.3	86.0
Katihar	6438.7	5994.6	93.1	8643.5	8293.0	95.9	9190.6	8758.0	95.3
Bihar	243760.0	219205.0	90.0	318183.0	289661.6	91.0	344840.4	310387.3	90.0

Source : Department of Rural Development, GoB

Table A 8.3 : District-wise Distribution of DPS Dealers by Social Background in Bihar (2018-19)

District	Number of Dealers	SC/ST	BC/EBC	Minority	Women	Women/ Other SHG	Helper Samiti/ PACS/ Samiti of Ex- Army Personnel	General	Total
Patna	2531	17.3	45.6	2.5	11.8	0.4	7.2	15.3	100.0
Nalanda	1251	15.4	41.2	3.9	11.0	1.8	15.3	11.4	100.0
Bhojpur	1320	15.3	37.5	3.5	11.2	0.0	9.7	22.8	100.0
Buxar	848	20.4	33.8	2.8	11.7	1.2	10.8	19.2	100.0
Rohtas	996	21.8	32.2	6.1	5.4	1.1	11.7	21.6	100.0
Kaimur	802	22.7	41.3	3.4	15.5	0.0	3.1	14.1	100.0
Gaya	1954	30.0	30.8	4.8	9.0	1.6	8.7	15.1	100.0
Jehanabad	481	19.1	32.0	4.4	9.1	0.4	11.9	23.1	100.0
Arwal	325	22.5	51.7	0.0	3.4	0.0	0.0	22.5	100.0
Nawada	986	16.0	33.2	4.2	11.3	1.9	12.4	21.1	100.0
Aurangabad	1108	17.1	35.8	3.9	4.0	0.2	9.4	29.6	100.0
Saran	2255	11.8	32.2	2.4	16.5	0.0	10.3	26.9	100.0
Siwan	1571	12.5	34.4	7.3	6.8	0.4	6.7	31.9	100.0
Gopalganj	1129	12.5	29.4	2.6	8.4	0.2	16.7	30.3	100.0
W. Champaran	1945	20.4	31.3	12.0	6.3	0.1	13.1	16.9	100.0
E. Champaran	2169	13.2	38.1	9.0	5.1	0.6	10.0	24.0	100.0
Muzaffarpur	1915	17.8	32.3	4.1	9.3	1.1	11.2	24.2	100.0
Sitamarhi	1608	17.7	43.3	3.3	6.3	0.0	9.4	20.0	100.0
Sheohar	333	14.1	30.6	4.8	9.9	1.5	12.0	27.0	100.0
Vaishali	1295	15.1	37.1	1.7	6.9	1.0	16.6	21.5	100.0
Darbhanga	1772	12.4	32.2	8.7	19.5	0.5	6.4	20.3	100.0
Madhubani	1465	19.2	35.8	7.6	5.6	1.3	11.1	19.4	100.0
Samastipur	1462	20.6	35.2	2.5	5.3	0.7	13.9	22.0	100.0
Begusarai	1021	27.3	27.3	4.3	11.9	0.0	4.6	24.5	100.0
Munger	619	10.3	49.1	4.5	10.8	0.2	8.9	16.2	100.0
Sheikhpura	289	16.6	36.3	2.4	6.6	0.0	12.5	25.6	100.0
Lakhisarai	406	12.6	35.2	2.0	12.1	0.2	10.6	27.3	100.0
Jamui	856	20.4	33.1	2.9	5.1	0.0	12.1	26.3	100.0
Khagaria	601	13.8	49.6	2.7	14.6	3.2	5.5	10.6	100.0
Bhagalpur	1108	17.9	43.1	9.4	8.0	0.0	6.2	15.3	100.0
Banka	922	11.9	40.1	5.9	7.5	2.4	5.0	27.2	100.0
Saharsa	807	18.7	38.7	9.3	8.2	1.2	11.3	12.6	100.0
Supaul	708	11.7	46.5	8.9	4.2	0.0	15.3	13.4	100.0
Madhepura	977	15.1	43.5	4.7	11.5	0.2	9.9	15.0	100.0
Purnea	1154	18.6	36.1	16.2	9.7	2.8	6.2	10.3	100.0
Kishanganj	573	14.1	26.4	0.0	4.2	0.3	8.4	46.6	100.0
Araria	1354	18.5	27.9	21.9	15.5	0.0	6.5	9.7	100.0
Katihar	1443	16.6	34.0	7.6	12.3	0.0	9.3	20.3	100.0
Bihar	44359	17.2	36.2	5.9	9.6	9.6	0.7	20.6	100.0

Source : Department of Food and Consumer Protection, GoB

Table A 8.4 : District-Wise Allotment and Lifting of Wheat and Rice under NFSA (2018-19)

(Fig in MT)

District	Wheat			Rice		
	Allotment	Lifting	Lifting Percentage	Allotment	Lifting	Lifting Percentage
Patna	107293	104273	97.2	160945	157238	97.7
Nalanda	54597	54597	100.0	81896	79762	97.4
Bhojpur	49147	46448	94.5	73720	73720	100.0
Buxar	21683	19476	89.8	32524	30633	94.2
Rohtas	46275	46275	100.0	69412	69397	100.0
Kaimur	25431	25431	100.0	38146	38112	99.9
Gaya	78051	73518	94.2	117075	116293	99.3
Jehanabad	15768	15768	100.0	23652	23652	100.0
Arwal	13357	12941	96.9	20035	19896	99.3
Nawada	42996	42054	97.8	64495	63468	98.4
Aurangabad	44953	44953	100.0	67430	67430	100.0
Saran	68968	68968	100.0	103452	103452	100.0
Siwan	59633	59633	100.0	89449	89449	100.0
Gopalganj	41915	40380	96.3	62873	62221	99.0
W. Champaran	82918	82918	100.0	124376	124376	100.0
E. Champaran	109801	109801	100.0	164702	164702	100.0
Muzaffarpur	100404	100404	100.0	150606	150606	100.0
Sitamarhi	75304	75304	100.0	112956	112918	100.0
Sheohar	14144	14144	100.0	21217	21217	100.0
Vaishali	77420	77420	100.0	116130	115451	99.4
Darbhanga	83995	82495	98.2	125995	123454	98.0
Madhubani	99950	99298	99.3	149925	149877	100.0
Samastipur	100645	99348	98.7	150962	149262	98.9
Begusarai	66701	66701	100.0	100052	99977	99.9
Munger	25736	21831	84.8	38604	36562	94.7
Sheikhpura	11580	11580	100.0	17369	17369	100.0
Lakhisarai	17793	17165	96.5	26689	25008	93.7
Jamui	36917	36917	100.0	55376	55376	100.0
Khagaria	37138	36749	99.0	55707	55224	99.1
Bhagalpur	53297	53297	100.0	79944	79944	100.0
Banka	40673	40673	100.0	61010	61010	100.0
Saharsa	42916	40547	94.5	64374	61099	94.9
Supaul	50145	50145	100.0	75218	75218	100.0
Madhepura	44100	44100	100.0	66150	66150	100.0
Purnea	73318	71039	96.9	109977	105139	95.6
Kishanganj	38516	38185	99.1	57774	57747	100.0
Araria	66036	66036	100.0	99054	99054	100.0
Katihar	68551	68551	100.0	102826	102826	100.0
Bihar	2088065	2059363	98.6	3132097	3104289	99.1

Source : Department of Food and Consumer Protection, GoB

CHAPTER - IX

URBAN DEVELOPMENT

By far the greatest and most admirable form of wisdom is that needed to plan and beautify cities and human communities.

— Socrates

Abstract

Urbanization indicates economic prosperity and alternation of sectoral composition away from the agricultural sector. In Bihar, the rate of urbanization has been very low compared to the all-India rate. Within Bihar, the pattern of urbanization has been very skewed as on one extreme the rate of urbanization was as high as 43.1 percent in Patna and on another it was only 3.5 percent in Banka. To improve amenities at the urban centers, the State Government has introduced various schemes like 'Har Ghar Nal ka Jal', 'Ghar Tak Pakki Gali-Naliyaan' to name a few. Moreover, the State Government has also implemented various development programmes of the Central Government, such as Namami Gange Programme, Deen Dayal Antyodaya Yojana– National Urban Livelihood Mission (DAY-NULM), etc. In Bihar, Patna, Bhagalpur, Biharsharif, and Muzaffarpur were identified for the SMART CITY Mission and different specific development programmes under the Mission have already been initiated. Recently, an amount of Rs. 13,366 crore has been sanctioned for Patna Metro Rail Project. In this regard, the State Government has already constituted Patna Metro Rail Corporation Ltd. (PMRCL) to construct 31.39 km of the metro to cover East-West and North-South corridors.

The urban areas are considered to be 'engines of growth' and 'shrines of social change', as they are harbingers of economic prosperity and overall socio-spatial development. Urbanization is, therefore, regarded as sine qua non of economic development. Urbanization is not only an outcome of the growth process and sectoral transition, it also acts as an impetus for strengthening the growth process through market exchanges, technology and social mobility. Bihar has always remained a significant player in the economic and political history of contemporary India. However, urban development in the state has been limited and, therefore, there is enormous scope for promoting urban development in the state. This will lead to expansion of non-farm activities and prevent massive out-migration of workers from Bihar to other Indian states.

In recent years, Bihar has embarked on one of the most comprehensive programmes of planned and systematic urban development. This includes various flagship programme to bring about a transformative change in the lives of people and these programmes are inclusive, participative and sustainable. The challenge of urban development has two different dimensions. First, to facilitate urban development, there has to be provision of basic civic amenities with necessary supportive human and physical infrastructure. The second dimension, which is more important in the context of Bihar, refers to the conversion of relatively larger rural centres to urban centres, such that these places are able to promote more non-agricultural production activities. In this perspective, the State Government has been quite responsive to both these challenges in the recent past. Presently, a number of urban development initiatives are being implemented in the state, some of which are financially supported by the Central Government.

9.1 Level of Urbanisation

The degree of urbanization is a pointer to the relative number of people residing in urban areas. As per Census 2011, 1.18 crore people (11.3 percent of total population) lived in urban areas of Bihar. The national average for urbanisation stands at a much higher level at 31.2 percent (Table 9.1). The state accounts for 8.6 percent of India's total population, but it has only 3.1 percent of country's total urban population. Secondly, it should also be noted that, apart from recording a low 'level' of urbanisation, Bihar has also recorded a low 'pace' of urbanisation. Between 2001 and 2011, the level of urbanisation in India has increased by 3.4 percentage points, from 27.8 percent (2001) to 31.2 percent (2011). In contrast, such increase was only 0.8 percentage points in Bihar, from 10.5 percent (2001) to 11.3 percent (2011). This slow pace of urbanisation in Bihar is indeed a long-term phenomenon. Between 1961 and 2011, a span of half a century, the level of urbanisation in Bihar has increased by 3.9 percentage points, from 7.4 percent (1961) to 11.3 percent (2011). For the entire country, this increase was 13.2 percentage points, from 18.0 percent (1961) to 31.2 percent (2011).

Table 9.1 : Urbanisation Trend in Bihar and India (Census Years)

Census Year		1961	1971	1981	1991	2001	2011
Level of Urbanisation	India	18.0	18.2	23.3	25.7	27.8	31.2
	Bihar	7.4	7.7	9.6	10.0	10.5	11.3
Urban Population (lakh)	India	789.4	1091.1	1594.6	2175.5	2853.5	3771.1
	Bihar	25.8	33.6	51.4	67.1	86.9	117.6
Decadal Growth of Urban Population	India	-	38.2	46.1	36.4	31.2	32.2
	Bihar	-	30.1	53.3	30.5	29.4	35.4

Source : Census of India, RGI, GOI

The pattern of urbanization in Bihar depicts high intra-state disparity, with district-wise levels of urbanization ranging from as high as 43.1 percent in Patna to 3.5 percent in Banka, as per Census 2011 (Table 9.2). The three highly urbanised districts are — Patna (43.1 percent), Munger (27.8 percent) and Bhagalpur (19.8 percent). Both Patna and Munger and half of Bhagalpur are in South Bihar. Out of a total of 199 towns in Bihar, only 26 have a population of at least one lakh, where one could expect the growth of secondary and tertiary activities. Patna, as the capital city, has maintained its primacy in the State’s urban system, as it accounts for 14 percent of state’s urban population, followed by Gaya, which has a share of 4 percent.

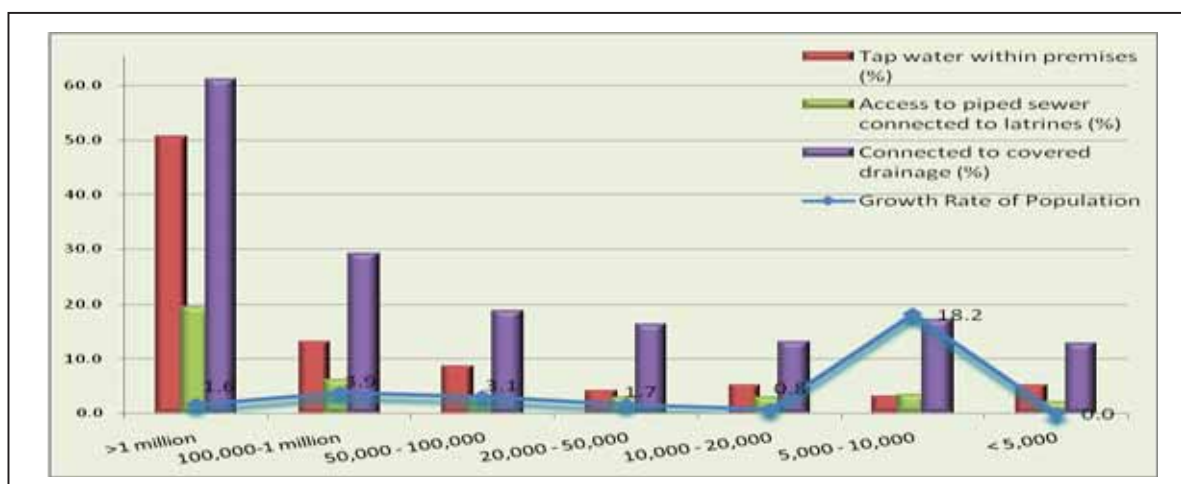
To fulfill the basic needs of urban population in a systematic and integrated way, the State Government has undertaken a number of schemes. From a recent survey, conducted by the Department of Urban Development and Housing, one can judge the extent of availability of basic services in urban areas of Bihar. This survey has covered four components of the basic urban services — Piped Water Supplies, Toilets, Roads, and Drainage. This data is now available for three types of urban centres — Municipal Corporations, Municipal Councils and Nagar Panchayats. The above survey had a sample of 19.08 lakh households.

Table 9.2 : District-wise Urbanisation of Bihar (2001 and 2011 Census)

Districts	Urbanisation		Districts	Urbanisation	
	2001	2011		2001	2011
Patna	41.6	43.1	Darbhanga	8.1	9.7
Nalanda	14.9	15.9	Madhubani	3.5	3.6
Bhojpur	13.9	14.3	Samastipur	3.7	3.5
Buxar	9.2	9.6	Begusarai	4.6	19.2
Rohtas	13.3	14.5	Munger	27.9	27.8
Kaimur	3.3	4	Sheikhpura	15.6	17.1
Gaya	13.7	13.2	Lakhisarai	14.7	14.3
Jehanabad	12.1	12	Jamui	7.4	8.3
Arwal	--	7.4	Khagaria	5.9	5.2
Nawada	7.7	9.7	Bhagalpur	18.7	19.8
Aurangabad	8.4	9.3	Banka	3.5	3.5
Saran	9.2	8.9	Saharsa	8.3	8.2
Siwan	5.5	5.5	Supaul	5.1	4.7
Gopalganj	6.1	6.4	Madhepura	4.5	4.4
W. Champaran	10.2	10	Purnea	8.7	10.5
E. Champaran	6.4	7.9	Kishanganj	10	9.5
Muzaffarpur	9.3	9.9	Araria	6.2	6.0
Sitamarhi	5.7	5.6	Katihar	9.2	8.9
Sheohar	4.1	4.3			
Vaishali	6.8	6.7	Bihar	10.5	11.3

Source : Census of India

Chart 9.1 : Percentage distribution of Urban Services and Growth rate 2011



In terms of the supply of piped water, the coverage is rather low (17.6 percent), taking into account all three types of urban habitations. Even for larger towns with Municipal Corporations, the coverage of piped water is only 33.7 percent of the households (Table 9.3). However, the status of basic services is much better with regard to toilets, as its overall coverage is about 94.1 percent. In larger towns, this coverage is even wider at 96.1 percent.

Table 9.3 : Availability of Piped Water and Toilet in Urban Areas of Bihar (June, 2016)

Particulars	No. of households surveyed (thousand)	Percentage of households with piped water	Percentage of households with toilets
Municipal Corporations	759.7	33.7	96.1
Municipal Councils	635.8	10.9	93.2
Nagar Panchayats	522.6	3.8	92.1
Total	1918.2	17.6	94.1

Source : Department of Urban Development and Housing, GoB

Table 9.4 : Status of Roads in Urban Areas of Bihar (2017)

Type of Town	Percentage Distribution of Roads by Type						Total
	Kutchia Roads	Tar Roads	Concrete Roads	Paved Block Roads	WBM Road	Brick Road	
Municipal Corporations	9.0	6.0	74.0	4.0	1.0	6.0	100.0
Municipal Councils	21.0	12.0	61.0	2.0	1.0	3.0	100.0
Nagar Panchayats	20.0	17.0	52.0	2.0	1.0	8.0	100.0
Total	15.0	9.0	67.0	3.0	1.0	5.0	100.0

Source : Department of Urban Development and Housing, GoB

One of the basic requirements of faster Urban Development is the availability of adequate roads of good quality, which ensures easy movement within a town. Table 9.4 presents the status of roads in the towns of Bihar. One may consider concrete roads, paved block roads and Water Bound Macadam (WBM) roads as quality roads in a town, and such roads account for 71 percent of the roads in the urban areas. Quite expectedly, the coverage of quality roads is even higher in larger towns at 79 percent. However, the spread of quality roads in smaller towns having a Municipal Council or Nagar Panchayats is below 64 percent for Municipal Councils and 55 percent for Nagar Panchayats. In regard to the drainage facility (Table 9.5), one again notices that its coverage is not universal even in larger towns where roads with no drain or kutcha drain account for 30.9 percent of the roads. For Municipal Councils, roads with no drains and Kutcha drains account for 58.1 percent of the total roads; for Nagar Panchayats, the corresponding figure is 73.9 percent.

Table 9.5 : Status of Drains in Urban Areas of Bihar (2017)

Type of Town	Percentage Distribution of Roads by Existence of Drains				
	No. of drain	Kutcha drain	Pucca drain	Hum pipe	Total
Municipal Corporations	21.5	9.4	67.4	1.7	100.0
Municipal Councils	49.6	8.5	41.4	0.5	100.0
Nagar Panchayats	68.4	5.5	25.9	0.2	100.0
Total	36.0	8.4	54.4	1.2	100.0

Source : Department of Urban Development and Housing, GoB

9.2 Expenditure on Urban Development

In the recent past, to improve basic services, the State Government is paying more attention to urban development. The budget allocation of the State Government on urban development and housing was Rs. 2079 crore in 2011-12, which increased to Rs. 3151 crore in 2017-18, registering a growth of 52 percent in six years (Table 9.6). Further, the actual expenditure on urban development and housing in the state increased from Rs. 1395 crore in 2011-12 to Rs. 3227 crore in 2017-18, implying a growth of 131 percent in six years. The actual expenditure on urban development and housing as a percentage of budget allocations has varied over the years. It was very low at 51.4 percent in 2014-15, but very high at 126.2 percent in 2016-17.

Table 9.6 : Expenditure Pattern of Urban Development and Housing in Bihar (2011-12 to 2017-18)

(Figures in Rs. crore)

Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Budget Allocation							
Housing	846	967	1064	3826	1897	2249	756
Urban Development	1233	1336	1784	2108	1737	2837	2395
Total	2079	2303	2849	5934	3634	5086	3151
Actual Expenditure							
Housing	823 (97.3)	827 (85.5)	927 (87.1)	1598 (41.8)	1486 (78.3)	3596 (159.9)	1113 (147.2)
Urban Development	572 (46.4)	1139 (85.3)	1364 (76.5)	1455 (69.0)	1649 (94.9)	2824 (99.5)	2114 (88.3)
Total	1395 (67.1)	1966 (85.4)	2291 (80.4)	3053 (51.4)	3135 (86.3)	6420 (126.2)	3227 (102.4)

Notes : Figures in brackets indicate utilisation percentage

Source : Finance Accounts, GoB

9.3 Urban Development Programmes (State Plan)

The State Government has been endeavouring to provide better living conditions in urban areas, and it is now implementing a number of programmes to attain this goal. This section presents the details of such programmes under the State Plan.

Mukhyamantri Saat Nishchay Yojana

The 'Saat Nishchay' (Seven Resolves) scheme aims at improving the lives of the people through education, skill development, electricity connection, piped water supply, and road and drainage. Out of these seven resolves, three are related to urban areas — 'Shauchalay Nirman Ghar Ka Sammaan', 'Har Ghar Nal Ka Jal' and 'Har Ghar Pakki Gali evam Naaliyan'. The Department of Urban Development and Housing is implementing the schemes, related to the three resolves mentioned above.

Mukhyamantri Shahri Peyjal Nishchay Yojana

The State Government has introduced 'Har Ghar Nal Ka Jal' scheme to provide clean and safe drinking water to all households in urban areas with water pipeline connection by 2019–20. Under this scheme, it is targeted to remove all the handpumps, on which the urban people generally depend for their water needs. It is roughly estimated that around 1.95 lakh households would benefit from this programme. The scheme is being implemented through Bihar Rajya Jal Parshad (BRJP), Bihar Urban Infrastructure Development Corporation (BUIDCO), Public Health

Engineering Department (PHED) and Urban Local Bodies. All urban bodies have been allotted the funds as per the following norms — 30 percent of the total fund required would come from the Fifth State Finance Commission, 30 percent of the fund required would come from the Fourteenth Central Finance Commission and the rest of the funds would be provided from the State Plan head. The salient features of the scheme are presented in Tables 9.7 and 9.8 and the district-wise progress is reported in Table A 9.1 (Statistical Appendix).

Table 9.7 : Salient Feature of the Scheme (2017-18 and 2018-19)

Indicator	2017-18	2018-19
Total No. of Households (HHs)	19,08,164	1911721
No. of HHs with piped water supply	3,36,521	3,21391
No. of HHs to be covered with piped water supply	15,71,643	15,85,430
No. of wards in which tenders floated	2826 out of 3396 wards	3286 out of 3370 wards
No. of wards in which work started	2333	2826
No. of HHs provided with water pipeline connections	2,05,933	5,99,481

Source : Department of Urban Development and Housing, GoB

Table 9.8 : Details of the Scheme (2017-18 and 2018-19)

Year	Details
Strategy (2017-18)	99,079 households in 32 towns under State Plan being executed by BRJP
	6,05,148 households in 21 towns under AMRUT being executed by BRJP
	1,44,504 households in 2 ADB schemes and 3 JnNURM Schemes being executed by BUIDCO
	7,22,912 households in 116 towns under Saat Nishchay Yojana being executed by ULBs
Strategy (2018-19)	1,48,350 households in 337 wards under State Plan being executed by BUIDCO
	5,00,328 households in 817 wards under AMRUT being executed by BUIDCO
	54,603 households in 125 wards under 1 ADB schemes and 3 JnNURM Schemes being executed by BUIDCO
	1,23,364 households in 233 wards under State Plan being executed by PHED
	75,786 households in 125 wards are proposed to be included in the Scheme in Bhagalpur, Patna, Danapur and Bodhgaya
	6,89,834 households in 1743 wards under Saat Nishchay Yojana are being executed by ULBs

Source : Department of Urban Development and Housing, GoB

Mukhyamantri Shahri Nali-Gali Pakkikaran Nishchay Yojana

It has been resolved that each street in all the wards of the urban areas in the state would be concretised. Besides this, each urban habitat would be connected through concrete roads. In order to provide each household with access to drainage system along with concrete streets, the State Government has initiated the 'Ghar Tak Pakki Gali-Naliyaan'. The scheme was launched with the aim of linking every house located in the urban areas with a permanent drain and street. The Urban Local Bodies, on the basis of the recommendation of the Ward Sabhas, have prepared long-term plans which are now being implemented as per the priority list.

By 2019-20, around 3,65,490 houses will be covered under the Pucca Nali scheme, of which 3,57,217 have already been covered so far. To meet the fund requirements, 20 percent of Fifth State Finance Commission funds have been reserved for the scheme, which will be supplemented by State Plan funds. The year-wise target is presented in Table 9.9. The salient features of the scheme are presented in Table 9.10 and Table 9.11. Finally, the district-wise targets and achievements are presented in Table A 9.2 (Statistical Appendix).

Table 9.9 : Year-wise Targets of Ghar Tak Pakki Gali Naliyaan Yojana (2016-17 to 2019-20)

Year	2016-17	2017-18	2018-19	2019-20	Total
Target (No. of Households)	72188 (20)	108282 (30)	109282 (30)	72188 (20)	360940 (100)

Note : Figures in parenthesis indicate percentages

Source : Department of Urban Development and Housing, GoB

Table 9.10 : Salient Features of Ghar Tak Pakki Gali Naliyaan Yojana (2017-18 and 2018-19)

Indicator	2017-18	2018-19
Total No. of Households (HHs)	1908164	1911517
No. of HHs to be covered under Nishchay Yojana	360938	360940
No. of wards in which tenders floated	In 3234 Wards out of 3396	In 3329 Wards out of 3330
No. of schemes tendered	7747	12281
No. of wards in which work started	3125 Wards out of 3377	3319 Wards out of 3330
No. of schemes completed	5510	8940
Length of Gali completed	572.96 (Km)	572.96 (Km)
Length of Nali completed	456.85 (Km)	456.85 (Km)

Source : Department of Urban Development and Housing, GoB

Table 9.11 : Details of Ghar Tak Pakki Gali Naliyaan Yojana (2017-18 and 2018-19)

Year	Details
Status (2017-18)	66,697 households has been covered against the target of 73,098 in 2016-17 and 68,885 against the target of 1,12,772 in 2017-18 (including backlog) and 96,976 in 2018-19 (Upto 30.11.2018) against the Target 1,53,029 (Including backlog)
Status (2018-19)	66,694 households has been covered against the target of 73,098 in 2016-17 and 76,839 households against the target of 112778 in 2017-18 (including backlog) and 1,32,819 households in 2018-19 against the target of 1,44,224 households (Including Backlog) have been covered in 2019-20 till Date against on enhanced target of 84,588 households.

Source : Department of Urban Development and Housing, GoB

9.4 Urban Development Programmes (Jointly Funded by Centre and State)

To improve the living conditions in urban areas, the State Government is implementing a number of development programmes in collaboration with the Central Government, apart from the programme of its own. This section presents the details of these jointly funded programmes — (i) Namami Gange Programme (NGP), (ii) Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY–NULM), (iii) Swachh Bharat Mission (SBM), (iv) Pradhan Mantri Awas Yojana – Housing for All (HFA), (v) Atal Mission for Rejuvenation and Urban Transformation (AMRUT), (vi) Smart City Mission and (vii) Heritage City Development and Augmentation Yojana (HRIDAY).

Namami Gange Programme

It is an integrated conservation Mission, approved as a flagship programme of the Central Government in June 2014, with a budget of Rs. 20,000 crore. The objectives of the programme are effective abatement of pollution, and conservation and rejuvenation of the Ganga, the national river. The key components under this programme are — (a) Creating Sewerage Treatment Capacity (Sewerage management projects are being implemented by the State Government), (b) Creating River-Front Development, and (c) River Surface Cleaning. This programme is being managed by the National Mission for Clean Ganga (NMCG). In addition to the above, the programme also includes components for afforestation and promotion of awareness. In all, 20 towns along the bank of river Ganga have been identified under Namami Gange Programme. The status of projects sanctioned under Namami Gange Programme is presented in Table 9.12.

Table 9.12 : Status of Projects under Namami Gange Programme (2015-16 to 2018-19)

Year	Cost of Projects (Rs. crore)						
	Solid Waste Management	Sewerage Network	Interception and Diversion of Drainage including STP	River Front Development	Crematoria	Community Toilets	Total
2015-16	-	-	-	-	-	1.05	1.05
2016-17	-	1177.00	-	243.30	40.86	4.05	1465.21
2017-18	-	2136.00	487.20	-	-	6.84	2630.04
2018-19	426.90	829.30	414.50	-	66.63		1737.33

Source : Department of Urban Development and Housing, GoB

Deendayal Antyoday Yojana – National Urban Livelihoods Mission (DAY–NULM)

To reduce poverty and vulnerability of the urban poor households by enabling them access gainful self-employment and skilled wage employment opportunities, this Mission aims to build strong grassroots-level institutions of the poor. The Mission aims at providing shelters which are equipped with essential services for the urban homeless in a phased manner. In addition, the Mission also addresses livelihood concerns of the urban street vendors by facilitating access to suitable spaces, institutional credit, social security and skills for accessing emerging market opportunities. It is expected that the activities of the Mission will ultimately result in an appreciable improvement in the livelihoods of the urban poor.

This programme has 5 components — (i) Social Mobilisation and Institutional Development (SM&ID), (ii) Employment through Skill Training and Placement (EST&P), (iii) Financial Inclusion and Self-Employment Programme (FI&SEP), (iv) Support to Urban Street Vendors (SUSV) and (v) Shelter for Urban Homeless (SUH).

Social Mobilisation and Institutional Development (SM&ID) : The mobilization of urban poor households to form their own institutions is an important instrument for an effective and sustainable poverty reduction programme. The National Urban Livelihood Mission (NULM) envisages universal social mobilization of urban poor into Self-Help Groups (SHGs) and their federations. At least one member from each urban poor household, preferably a woman, should be brought under the Self-Help Group network in a time-bound manner. These groups would serve as a support system for the poor to meet their financial and social needs. The number of

Self-Help Groups (SHGs) formed under NULM has increased from 2185 in 2017-18 to 5640 in 2018-19. The number of members in SHG under NULM also increased from 21,850 in 2017-18 to 56,402 in 2018-19. The number of SHGs which got Revolving Fund (RF) has shown an increase from 1260 in 2017-18 to 2622 in 2018-19 (Table 9.13).

Table 9.13 : Achievement under SM&ID (2017-18 and 2018-19)

Program/Monitoring Parameter	Achievement	
	2017-18	2018-19
No. of Self-Help Groups (SHGs) formed under NULM	2185	5640
No. of members in the SHGs under NULM	21850	56402
No. of Area-Level Federations (ALFs) formed under NULM	25	150
No. of City-Level Federations formed under NULM	01	05
No. of SHG which Got Revolving Fund (RF)	1260	2622

Source : Department of Urban Development and Housing, GoB

Employment through Skill Training and Placement (EST&P) : The main objectives of the programme are to train urban BPL youth and provide them with either salaried employment or self-employment opportunities. This programme is implemented through National Urban Livelihood Mission (NULM) and Bihar Skill Development Mission (BSDM). Due to amendments in operational guidelines of NULM and introduction of process and cost norms of BSDM, the concerned department had made an arrangement for assessment and certification of trained beneficiary in association with Sector Skills Council (SSC). Table 9.14 shows that the number of persons who completed training has increased from 3504 in 2017-18 to 4083 in 2018-19.

Table 9.14 : Achievement under EST&P (2017-18 and 2018-19)

Population Category	Number of Persons			
	2017-18		2018-19	
	Undergoing Training	Completed Training	Undergoing Training	Completed Training
SC	487	496	519	559
ST	39	147	67	111
Others	2219	2861	2466	3413
Total	2745	3504	3052	4083

Source : Department of Urban Development and Housing, GoB

Financial Inclusion & Self Employment Programme (FI&SEP) : This component of NULM focuses on providing financial assistance to individuals and groups of urban poor who are desirous of setting up gainful self-employment ventures or microenterprises, suited to their skills, aptitude and local conditions. Besides generation of income, the component empowers the urban poor by making them self-reliant. The urban local bodies provide support for processing loan application for individual urban poor. It also supports in assessing the skills requirement of the beneficiary and linking them with training programmes of Rural Self-Employment Training Institutes (RSETI).

In Table 9.15, it is observed that there are significant number of beneficiaries under FI&SEP programme — 1819 in 2017-18 and 2891 in 2018-19. This implies a growth of 59 percent. In 2018-19, there were 208 SHGs with credit linkage.

Table 9.15 : Achievement under FI&SEP (2017-18 and 2018-19)

Program/ Monitoring Parameter	No. of Beneficiaries	
	2017-18	2018-19
SEP-I individual	1725	2680
SEP- Group	08	03
SHG Credit Linkage	103	208
Total	1819	2891

Source : Department of Urban Development and Housing, GoB

Support to Urban Street Vendors (SUSV) : This programme aims to organise street vending activities in all 142 urban centres of Bihar. It first proposes to conduct a survey of the street vendors, and then issue them I-Cards and facilitate their linkage with different welfare schemes. In particular, the programme promotes financial inclusion, training, and insurance coverage for identified street vendors across the state.

The Department of Urban Development & Housing of the State Government is currently implementing the provisions of the Street Vendors (Protection of Livelihoods and Regulation of Street Vending) Act, 2014. In exercise of the powers conferred by Section 38 of the Act and after consultation with the Urban Local Bodies and Town Vending Committees, the State Government has notified the Bihar Street Vendors (Protection of Livelihood and Regulation of Street

Vending) Rules, 2017 and is implementing them. In exercise of the powers conferred by Section 22 of the Act, the Town Vending Committees (TVC) has been constituted in all towns of Bihar. As per these Rules, Identity Cards are being distributed to surveyed street vendors. The Urban Local Bodies, in consultation with the Town Vending Committees, are in the process of developing City Street Vending Plans. The proposal for Vending Zones in Motihari town has already been sanctioned and it is under the process of implementation.

Table 9.16 : Achievement under Support to Urban Street Vendors (2017-18 and 2018-19)

Program/ Monitoring Parameter	Progress	
	2017-18	2018-19
Survey of Street Vendors		
No. of cities to be covered for Street vendor Survey	98	98
No. of cities in which vendor survey has started	98	98
No. of cities which has completed vendor survey	06	11
No. of Street Vendors identified in surveyed cities (Biometric survey)	—	61074
No. of Street Vendors issued ID cards	9850	17788
Others		
No. of basic Saving Accounts opened for Street Vendors	805	535
No. of Financial literacy camps organized for Street Vendors	25	09
No. of training programmes organized for Street vendors	27	04
Number of Street Vendors trained under Capacity Building	2875	298
No. of Credit Cards issued to Street Vendors	20	0
No of Street Vendors linked to insurance scheme	192	222

Source : Department of Urban Development and Housing, GoB

Shelter for Urban Homeless (SUH) : The SUH scheme aims to ensure availability and access to permanent shelters for the urban homeless population, including the basic infrastructure facilities like water supply, sanitation, safety and security. To cater to the needs of especially

vulnerable segments of the urban homeless population (dependent children, aged, disabled, mentally ill and people recovering from grave illness), the State Government is creating special sections within homeless shelters and providing special service linkages for them. The Department had sanctioned construction of 48 new shelters (50-bedded) in 48 cities. Apart from the new construction, refurbishment as well as operation and maintenance of 66 existing shelters have also been undertaken under SUH scheme.

Swachh Bharat Mission (SBM)

This is one of the flagship projects launched by the Central Government in 2014 to improve the sanitation standards in the country. With Bihar facing an acute problem of open defecation. Bihar has set a target for the construction of 4.30 lakh toilets in the urban areas.

Table 9.17 : Physical Progress under SBM (2018 and 2019)

Particulars	2018		2019	
	Constructed	Under Construction	Constructed	Under Construction
Individual Toilet	263368	170170	394076	45810
Community Toilets	5213	4311	12148	5774
Public Toilets	3220	168	3220	168

Source : Department of Urban Development and Housing, GoB

For individual toilets, the State Government provides Rs. 8000 to each family, in addition to the central assistance of Rs. 4000. Till date, all 141 urban centres and a total of 3367 wards out of 3367 wards have been declared as ODF (Open Defecation-Free) (Table 9.17).

Pradhan Mantri Awas Yojana - Housing for All

The Pradhan Mantri Awas Yojana Mission was launched in June 2015. The duration of the Mission is up to March, 2022. The main objective of this scheme is to provide pucca houses for the homeless families under different income slab. The details of this programme are presented in Table 9.18.

Table 9.18 : Progress of Work Under Pradhan Mantri Awas Yojana – Housing for All (October, 2019)

Particulars	Number
Total target of houses to be constructed in different verticals under PMAY	5,50,000
Total Demand of houses till date in different verticals under PMAY	5,21,500
i. Beneficiary-led Construction (BLC)	3,55,000
ii. Credit-linked Subsidy Scheme (CLSS)	30,000
iii. In-Situ Slum Redevelopment (ISSR)	18,500
iv. Affordable Housing in Partnership (AHP)	1,18,000
Total Towns Covered	140
Total Sanctioned Projects	336 under Beneficiary Led Construction
Total Sanctioned Dwelling Units	2,70,739
Particulars	Financial Details (Rs. lakh)
Total Project Cost	1380262.82
Total Central Share	406108.50
Total State Share	135369.50
Central Share Released	125168.00
State Share Released	32946.00
Total Expenditure till Oct. 2019	99190.00

Source : Department of Urban Development and Housing, GoB

Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

The State Government has sanctioned a number of Water Supply Schemes, Drainage Schemes, and Parks under AMRUT. The allocations and expenditures under these three heads are presented in Table 9.19. The details about specific schemes under each category is presented in Table 9.20 (Water Supply Schemes), Table 9.21 (Drainage Schemes) and Table 9.22 (Parks).

Table 9.19 : Allocations and Expenditure under AMRUT (2018-19)

Scheme	Total Project Cost (Rs. lakh)	Total Expenditure (Rs. lakh)	Financial Achievement (%)
Water Supply Schemes	226757.623	62589.276	27.6
Drainage Schemes	26673.62	485.71	1.8
Parks	2435.018	565.00	23.2
Total	255866.261	63639.986	24.9

Source : Department of Urban Development and Housing, GoB, 2020

Table 9.20 : Details of Water Supply Schemes (Upto 2018-19)

Scheme	Total Project Cost (Rs. lakh)	Total Expenditure Cost (Rs. lakh)	Financial Achievement (%)
Hajipur Water Supply Scheme-Phase I & II	10869.99	4730.228	43.5
Buxar Water Supply Scheme-Phase I & II	8015.60	3388.856	42.3
Chhapra Water Supply Scheme-Phase I & II	12762.27	4798.01	37.6
Jehanabad Water Supply Scheme-Phase I & II	7688.72	3604.72	46.9
Bagaha Water Supply Scheme-Phase I & II	9407.93	3471.37	36.9
Motihari Water Supply Scheme-Phase I & II	10544.82	2783.952	26.4
Siwan Water Supply Scheme-Phase I & II	11133.38	4147.00	37.2
Aurangabad Water Supply Scheme-Phase I	6606.08	1976.02	29.1
Purnea Water Supply Scheme-Phase I & II	21033.44	4550.00	21.6
Sasaram Water Supply Scheme-Phase I & II	11742.58	4291.19	36.5
Katihar Water Supply Scheme-Phase I & II	15454.65	3658.00	23.7
Begusarai Water Supply Scheme-Phase I & II	12796.86	1005.77	7.9
Kishanganj Water Supply Scheme-Phase I & II	7583.11	1600.00	21.1
Biharsharif Water Supply Scheme-Phase I & II	17199.62	6157.30	35.8
Aarah Water Supply Scheme-Phase I & II	13219.30	2235.25	16.9
Darbhanga Water Supply Scheme	6184.61	500	8.1
Saharsa Water Supply Scheme	9641.84	4312.00	44.7
Bettiah Water Supply Scheme	10192.76	1920.08	18.8
Dehri Water Supply Scheme	8807.00	3459.53	39.3
Munger Water Supply Scheme	12799.75	0.00	0.0
Jamalpur Water Supply Scheme	3073.313	0.00	0.0
Total	226757.623	62589.276	27.6

Source : Department of Urban Development and Housing, GoB, 2020

Table 9.21 : Details of Drainage Schemes (Upto 2018-19)

Scheme	Total Project Cost (Rs. lakh)	Total Expenditure Cost (Rs. lakh)	Financial Achievement (%)
Bhagalpur Storm water drainage Scheme	3161.00	158.08	5.0
Patna Storm water drainage Scheme	5172.62	327.63	6.3
Muzaffarpur Storm Water Drainage Scheme	18340.00	0.00	0.0
Total	26673.62	485.71	1.8

Source : Department of Urban Development and Housing, GoB, 2020

Table 9.22 : Details of Parks (Upto 2018-19)

Scheme	Total Project Cost (Rs. lakh)	Total Expenditure (Rs. lakh)	Financial Achievement (%)
Park Development in Buxar	43.26	21.00	48.5
Park Development in Aarah	156.12	69.00	44.0
Park Development in Biharsharif	59.44	21.00	35.3
Park Development in Darbhanga	83.00	43.00	51.8
Park Development in Chhapra	108.499	87.00	80.2
Park Development in Motihari	114.03	55.00	48.2
Park Development in Siwan	63.02	38.00	60.3
Park Development in Kishanganj	78.40	38.00	48.5
Park Development in Sasaram	95.655	32.00	33.4
Park Development in Behtiah	47.454	36.00	75.7
Park Development in Gaya	338.31	30.00	8.9
Park Development in Patna	472.00	79.00	16.7
Park Development in Saharsa	49.465	0.00	0.0
Park Development in Munger	224.175	0.00	0.0
Park Development in Purnea	289.00	0.00	0.0
Park Development in Aurangabad	151.00	16.00	10.6
Park Development in Bodhgaya	62.19	0.00	0.0
Total	2435.018	565.00	23.2

Source : Department of Urban Development and Housing, GoB, 2020

Table 9.23 : Status of Implementation of Approved Water Supply Schemes (Upto 2018-19)

Description	No. of Projects	Amount (Rs. crore)	Remarks
Approved by Apex Committee	38	2184.25	—
Approved by SHPSC	36	2237.48	Excluding State Plan
Contract Awarded	33	2076.21	Including O&M Cost
Work in Progress	33	2076.21	Including O&M Cost
Under Tendering	3	192.27	Including O&M Cost

Source : Department of Urban Development and Housing, GoB, 2020

SMART City Mission

Under this scheme, four cities in Bihar have been selected — Patna, Bhagalpur, Biharsharif and Muzaffarpur. Since Bhagalpur was selected during the first phase, Rs. 286 crore has already been earmarked for Bhagalpur. The approval of the state cabinet has already been obtained on planned budget for Patna, Muzaffarpur and Biharsharif. Special Purpose Vehicles (SPV) have been established for these three towns. The details of the Smart City Mission in Bihar are presented in Tables 9.24, 9.25 and 9.26.

Table 9.24 : Progress under SMART City Mission (2018-19)

Bhagalpur	Amount (Rs. crore)
(i) Multimodal intelligent Public Transport system	138.50
(ii) Development of UG sewerage system with SBR STP	119.39
(iii) 24X7 water supply	493.00
(iv) Command and Control Data Centre	31.40
Biharsharif	
(i) Commercial Area Development	109.00
(ii) Improvement of Vehicular Movement and decongestion of roads	190.95
(iii) Unified City Governance	140.90
Muzaffarpur	
(i) Commercial Area Development	194.02
(ii) Improvement of Vehicular Movement and decongestion of roads	159.00
(iii) River and Lake Front Development	119.76
(iv) 24X7 water supply	52.61
Patna	
(i) Redevelopment of Railway station area	433.00
(ii) Smart Road Network	240.30
(iii) Slum-Free ABD	123.34
(iv) Solar Rooftop on Government Building	99.92
(v) Multi-Utility Smart Poles	148.50
(vi) Integrated Command and Control Data Centre	89.60

Source : Department of Urban Development and Housing, GoB, 2020

Table 9.25 : Progress under SMART City Mission (2016 to 2018)

SCP Cost (Rs. crore)	SPV Establishment	CEO Appointment	PMC Appointment	Central Share Released (Rs. crore)	State Share Released (Rs. crore)
Bhagalpur (Fast Track- 25.05.2016)					
1,309.30	14.12.2016	14.12.2016 (Municipal Commissioner)	Tender floated for selection of new PMC	196.00	186.00
Muzaffarpur (3rd Round-28.06.2017)					
1,580.00	18.12.2017	18.12.2017 (Municipal Commissioner)	18.06.2018 (M/s SREI Infrastructure Finance Ltd)	60.00	52.50
Patna (3rd Round-28.06.2017)					
2,776.16	09.11.2017	24.07.2018 (Addl. Municipal Commissioner)	(M/s Eptisa with M/s IDeCK)	194.00	186.00
Biharsharif (4th Round-19.01.2018)					
1,517.00	17.05.2018	17.05.2018 (Municipal Commissioner)	23.07.2018 M/S URS Scott Wilson	60.00	50.00
Total					
7,182.46				510.00	474.50

Source : Department of Urban Development and Housing, GoB

Table 9.26 : Smart City Costing

City	Work Completed Stage		Work Order Issuse Stage		DPR under Preparation	
	No of Projects	Cost (Rs crore)	No of Projects	Cost (Rs crore)	No of Projects	Cost (Rs crore)
Bhagalpur	87	12.98	100	34.40	4	708.43
Muzaffarpur	0	0	1	11.392 (Breda Roof Top Solar)	5	238.58
Patna	0	0	19	1233.1 (Convergence) 1010.64 (SCM)	10	500.12
Biharsharif	0	0	15	232 (Convergence) 31.89 (SCM)	20	614
Total	87	12.98	135	1320.322	39	2061.13

Source : Department of Urban Development and Housing, GoB, 2020

Patna Metro Rail

Patna Metro Rail project with a total cost of Rs. 13,365.77 crore has been sanctioned in February, 2019. For implementation of the project, Patna Metro Rail Corporation Ltd. (PMRCL) has been constituted and registered again in February, 2019. The total length of the project is 31.39 Kms. with two corridors — East-West corridor and North-South corridor.

In the first phase, a total length of 16.94 kms has been proposed for the East-West Metro Corridor (Danapur to Mithapur via Bailey Road and railway station). In the second phase, a total length of 14.45 kms has been proposed for the North-South Metro corridor (from Patna railway station to New Interstate Bus Terminus (New ISBT), via Gandhi Maidan, Patna Medical College and Hospital, and Rajendra Nagar Railway Station. The work for Patna metro rail project has been awarded to Delhi Metro Rail Corporation (DMRC). A contract agreement between PMRCL and DMRC has been signed in September, 2019. The DMRC has already started the work of Patna Metro Rail Project.

9.5 Municipal Finance

The State Government has been collecting data on municipal finance for 35 Urban Local Bodies in which Double Entry Accounting System (DEAS) has been introduced by 2015-16. The relevant data is presented in Table 9.27. The revenue grants comprise a very large part of total revenue income of municipal bodies. For example, in 2018-19, out of a total income of Rs. 25962.44 lakh, the revenue grants accounted for Rs. 20395.74 lakh (78.6 percent). Unless the self-generated income of the municipal bodies grows fast, their heavy dependence on the revenue grants will continue for many more years. In the recent past, the self-generated income of the local bodies has grown only at a modest rate. In case of expenditure, the major component is establishment expenditure. In 2018-19, the expenditure on establishment was Rs. 4016.24 lakh, which is no less than 48.1 percent of the total expenditure of Rs. 8349.23 lakh. In general, the municipal bodies in Bihar, as elsewhere in India, are highly dependent on external support. If one takes into account the share of self-generated income in total revenue income, it is less than 16 percent in all the years. The highest share (15.3 percent) was achieved in 2016-17. Consequently, self-generated income is not able to cover even the establishment expenditure of the ULBs. There is, however, a positive trend as self-generated income as percentage of total establishment expenditure has increased from only 36.2 percent in 2014-15 to 85.3 percent in 2018-19.

Table 9.27 : Municipal Finances for 35 Towns in Bihar (2014-15 to 2018-19)

Indicator	2014-15	2015-16	2016-17	2017-18	2018-19
Revenue Income					
(a) Self-Generated Income	1522.07	2179.63	12850.65	14784.76	3426.88
(i) Holding Tax	418.23	452.96	7957.36	8715.84	1642.65
(ii) Other Tax	209.69	331.51	1419.45	1426.60	1578.95
(iii) Non-Taxes	894.16	1395.16	3473.84	4642.32	205.28
(b) Assigned Income	284.66	176.31	10823.83	17075.03	917.62
(c) Revenue Grants	11885.73	11192.65	57913.36	71007.31	20395.74
(d) Other Income/Receipts	361.97	863.26	2315.49	5063.70	1222.20
Total (Revenue)	14054.44	14411.85	83903.33	107930.8	25962.44
Self-generated Income as percentage of Total Revenue Income	10.8	15.1	15.3	13.7	13.2
Revenue Expenditure					
(a) Establishment	4206.79	5270.40	27311.26	27165.33	4016.24
(b) Programme	1811.09	2936.65	0.00	0.00	417.49
(c) Operation/Maintenance	1095.85	1925.97	5316.37	17727.53	2028.42
(d) Finance/Interest	0.68	0.55	0.02	0.05	0.38
(e) Others	7330.70	9474.68	14798.24	12847.37	1886.70
Total	14445.11	19608.25	47425.89	57740.28	8349.23
Capital Grants	32216.58	34418.31	46637.67	139337.05	26757.05
Capital Expenditure	NA	NA	NA	NA	36275.74
Self-generated Income as percentage of Establishment Cost	36.2	41.4	47.0	54.4	85.3

Source : Department of Urban Development and Housing, GoB

APPENDIX

Table A 9.1 : District-wise Progress of the Mukhyamantri Shahri Peyjal Nishchay Yojana (2016-17 to 2019-20)

District	Urban Local Ward	No of Households (HH)	Access to HH Tap	Total Access to HH Tap Water				Total
				2016-17	2017-18	2018-19	2019-20	
Patna	363	334941	154630	18131	12317	23734	14751	68933
Nalanda	143	71177	21542	1908	5617	3674	11401	22600
Bhojpur	119	57531	4551	2667	1767	4835	12105	21374
Buxar	60	22209	2261	584	2712	5209	4789	13294
Rohtas	159	69214	12625	771	1027	4522	21895	28215
Kaimur	41	14294	1663	0	100	8214	2240	10554
Gaya	105	86134	32467	4550	514	1526	5229	11819
Jehanabad	52	27040	1718	3437	5512	7060	9602	25611
Arwal	25	8685	0	0	0	2430	2240	4670
Nawada	70	31307	2458	944	5695	8945	3038	18622
Aurangabad	86	33638	261	0	936	1903	4118	6957
Saran	162	75245	7353	1	2786	19801	6959	29547
Siwan	65	29674	76	35	1392	6921	7181	15529
Gopalganj	78	25947	0	85	1096	4900	2253	8334
W. Champaran	137	67902	217	1015	2516	4369	9635	17535
E. Champaran	170	69216	582	1917	2289	14567	13904	32677
Muzaffarpur	91	84825	24272	0	2493	8092	6343	16928
Sitamarhi	103	36389	1088	670	3456	5480	8709	18315
Sheohar	15	6344	36	36	785	0	3574	4395
Vaishali	97	36713	2441	2110	1656	10195	8851	22812
Darbhanga	77	75850	5182	505	1020	2580	17487	21592
Madhubani	71	30899	425	0	500	6394	7321	14215
Samastipur	61	23375	1671	0	0	5466	3979	9445
Begusarai	144	87881	2426	100	371	4651	10255	15377
Munger	99	40491	6370	0	0	0	1250	1250
Sheikhpura	53	18559	3252	0	1323	6566	5533	13422
Lakhisarai	57	28201	6896	1183	3437	4392	2929	11941
Jamui	52	25577	0	0	600	3200	5500	9300
Khagaria	46	18426	338	0	0	615	3956	4571
Bhagalpur	116	98991	22300	451	2054	17980	1422	21907
Banka	36	12851	49	0	1180	3656	546	5382
Saharsa	55	40033	62	510	1250	6547	7437	15744
Supaul	53	23219	1697	586	2835	2911	5027	11359
Madhepura	41	20293	6	163	844	4484	5987	11478
Purnea	80	68697	373	0	1182	5896	4706	11784
Katihar	77	41775	0	0	0	1866	6064	7930
Araria	73	33818	103	1154	1756	28	946	3884
Kishanganj	64	34360	0	0	0	2825	7354	10179
Total	3396	1911721	321391	43513	73018	226434	256516	599481

Source : Department of Urban Development and Housing, GoB, 2020

Table A 9.2 : District-wise Targets and Achievements of Ghar Tak Pakki Gali Naali Yojana (Upto October, 2019)

District	Total Number of Urban		Number of Households	
	Wards	Households	To be covered	Covered
Patna	363	334941	51911	26517
Nalanda	143	71177	11306	27152
Bhojpur	119	57531	8948	22455
Buxar	60	22209	5469	10020
Rohtas	159	69214	16223	14150
Kaimur	41	14294	3103	2787
Gaya	105	86134	11591	8731
Jehanabad	52	27040	6627	4833
Arwal	25	8685	2171	1815
Nawada	70	31307	7586	5637
Aurangabad	86	33638	8219	7989
Saran	162	75245	12700	9820
Siwan	65	29674	7553	7729
Gopalganj	78	25947	6177	5824
W. Champaran	137	67884	16633	12947
E. Champaran	170	69525	16621	15303
Muzaffarpur	91	84836	11226	27276
Sitamarhi	103	36389	8680	7732
Sheohar	15	6344	1459	1307
Vaishali	97	36207	8840	5547
Darbhanga	77	75850	11226	15141
Madhubani	71	30899	7431	10291
Samastipur	61	23375	5609	3044
Begusarai	144	87881	14368	17641
Munger	99	40491	8931	7716
Sheikhpura	53	18559	4994	5446
Lakhisarai	57	28201	6959	3230
Jamui	52	25577	6232	3359
Khagaria	46	18426	4442	9410
Bhagalpur	116	98991	13336	11246
Banka	36	12851	2956	2910
Saharsa	55	40033	9870	4520
Supaul	53	23219	5516	5279
Madhepura	41	20293	4932	3415
Purnea	80	68697	9200	11934
Katihar	77	41775	8221	5009
Araria	73	33818	8398	7032
Kishanganj	64	34360	5276	5043
Bihar	3396	1911517	360940	357237

Source : Department of Urban Development and Housing, GoB, 2020

CHAPTER - X

BANKING AND ALLIED SECTORS

It is not by augmenting the capital of the country, but by rendering a greater part of that capital active and productive than would otherwise be so, that the most judicious operations of banking can increase the industry of the country. —Adam Smith

Abstract

This chapter presents the details about the banking infrastructure in Bihar. It highlights the role of banking and other financial institutions in socio-economic development. It is observed that there is a need to improve banking infrastructure for a better credit facility to promote economic activity in the state. The banking infrastructure has increased in the semi-urban areas at a higher pace than the rural and urban areas in the state. The Scheduled Commercial Banks (SCB) has the largest presence in the state among all types of banking institutions. However, if one compares their presence in Bihar with other states in the country, it is found that the SCBs have relatively less coverage, and their branches in Bihar are also comparatively under-staffed. The Credit to Deposit (CD) ratio of the Public Sector SCBs in Bihar is the lowest among major states of the country. To achieve the national CD ratio of 78.2 percent, the SCBs need to provide a huge amount of credit in the state. The current scenario indicates the flight of capital from the state through the SCBs. The performance of Private Banks, Small Finance Banks, Cooperative Banks and Regional Rural Banks are better than the Public Sector Banks in Bihar in terms of providing credit. Given the credit need for the economic activity in Bihar, Small Finance Banks, Regional Rural Banks and Micro-Finance Institutions will have to play a key role in providing much-needed capital support for further economic development of Bihar.

Financial transactions through banks and other financial institutions play a key role in economic development. These institutions serve as custodian of the wealth and provide capital, a key factor of production. The evidence in the literature suggests that there is a strong positive relationship between financial development and economic growth. The indicators of financial development are correlated with the growth of both total factor-productivity and investment. With the productive investment, labour is supplemented with more capital, which enhances the technological progress and the output in the economy. Also, the increase in disposable income with the economic

development and the increasing working population lead to higher demand for the banking and related services in both rural and urban areas. Thus, banks and financial institutions play an important role in promoting profitable investment and facilitating economic transactions.

The present chapter looks at the functioning of key financial institutions in Bihar, taking into account the related local, national and global events. This is because Bihar economy is largely affected by the developments in the banking and financial sectors, both in India and the world. The overall operational efficiency of banks in India has improved in the recent years because of financial innovations like internet banking, mobile banking, use of debit and credit cards, and various other facilities through the ATMs (Automated Teller Machine). Admittedly, there remain challenges related to the risk of fraud for the consumers using these innovative means of banking. However, the enhanced security features and improvement in financial literacy and awareness will help in the reduction of these cases. The benefits of these can be fully realized in Bihar through the improvements in financial literacy and user awareness.

The Indian economy has seen a significant reduction in the interest rates in the current financial year. The Reserve Bank of India (RBI) has reduced policy interest rate by 135 basis points from February to October 2019. The Repo Rate of 5.15 percent in October 2019 was the lowest since March 2010, when it stood at 5.0 percent. This is in line with the lower policy interest rates and accommodative stance of the majority of the central banks in the world amid the looming slowdown. However, there remains concern regarding the transmission of these rate cuts to the borrowers in the Indian economy. The banks have an option to benchmark the loans either to the RBI repo rate, or Government of India 3-month or 6-month Treasury Bill yield, or any other benchmark market interest rate published by Financial Benchmarks India Pvt Ltd. With the recent RBI guideline that made it mandatory for banks to link all new floating rate loans to retail, personal and MSME (Micro, Small & Medium Enterprises) borrowers with an external benchmark from October 1, 2019, the floating rate new borrowers in the economy are expected to benefit from lower interest rates.

The Government of India announced merging the ten Public Sector Banks into four in the financial year 2018-19, to create robust banking infrastructure to meet the capital requirements of the growing Indian economy. These are the banks which were acquired by the Government of India through nationalisation during the period 1969 to 1980. The banking operation has increased manyfolds over the years since then, along with the expansion of the economy. With the changing structure of the credit and deposit in the economy, the objectives of these banks have also changed and they are expected to provide services on par with not only the private sector banks but the global lenders. The bigger banks with more funds should be in a better position to meet the financial needs of the state in the coming years. However, the merger of banks will lead to the

merger of their branches at the same location, which will reduce the availability of the banking services to the people. This must be compensated by improving the accessibility to the banking services in states. Various measures have been taken in recent years to boost the ecosystem for the cashless transactions in India. The RBI announced the conversion of the National Electronic Funds Transfer (NEFT) channel into a 24x7 service and on-tap participation in some retail payment systems. At present, there also exists the Real Time Gross Settlement (RTGS) system, which is primarily meant for large value transactions of Rs. 2.00 lakh and above. The RBI has also increased the RTGS time window for customer transactions from 4.30 p.m. to 6.00 p.m. Another remarkable achievement in the promotion of cashless transaction was the Unified Payments Interface (UPI) based transactions using mobile phones. The UPI platform enables users to send money from their bank account to any account without entering bank details by using the email or phone number or by scanning a QR (Quick Response) code. The transactions using UPI, India's own domestic payments platform, crossed 100 million users in October 2019, with more than one billion transactions in three years after its launch in 2016. In the fifth monetary policy statement of the year 2019-20, announced on December 5, 2019, RBI has proposed to introduce a new type of Prepaid Payment Instrument (PPI) which can be used only for the purchase of goods and services up to a limit of Rs. 10 thousand. The loading-reloading of such PPI will be only through a bank account and they shall be used for making only digital payments. This move will play an important role in promoting digital payments.

The RBI has also launched a Complaint Management System (CMS) to allow members of the public to lodge their complaints on its website against any of the regulated entities with public interface. Among others, these entities are Urban Cooperative Banks (UCB) and Non-Banking Financial Institutions (NBFC). Also, new safety measures are being taken by the RBI to safeguard the frauds through the ATMs.

In the above background, the following analysis of the financial sector in Bihar takes into account five kinds of institutions functioning in the state — (i) Scheduled Commercial Banks (SCB), (ii) Regional Rural Banks (RRB), (iii) Cooperative Banks, (iv) Small Finance Banks (SFB), and (v) Microfinance Institutions. While the Scheduled Commercial Banks provide finance to both industry and agriculture, the Regional Rural Banks and Cooperative Banks largely look after the requirements of the agriculture sector. The role of Small Finance Banks and the Microfinance Institutions in Bihar economy has increased in recent years.

10.1 Banking Infrastructure

Table 10.1 presents the number of new bank branches opened by various banks in Bihar during 2005-06 to 2018-19. There is a significant decline in the number of bank branches being opened by the SCBs in the state in recent years. Majority of the addition in the number of bank branches

by the SCBs in the state during 2018-19 was by the private sector banks. State Bank of India and the RRBs added only one branch each in 2018-19 in the state. With the introduction of the Small Finance Banks and the Payment Banks in India as banking services providers, Bihar has seen their presence with 107 and 38 new branches, respectively. Within three years of their introduction in the banking sector, these banks have 234 branches in the state.

Table 10.1 : New Bank Branches Opened in Bihar (2005-06 to 2018-19)

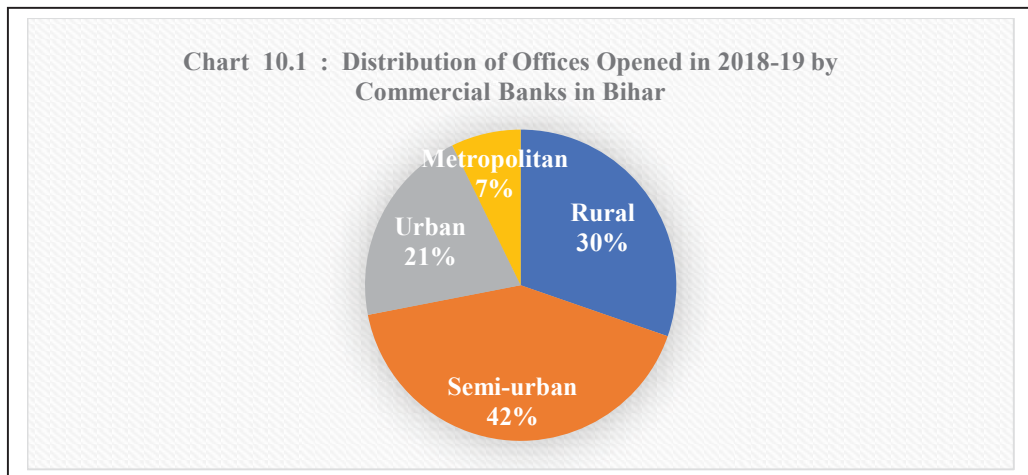
Year	SBI and its Associates	Nationalised Banks	Other PSBs	RRBS	Private Sector Banks	Foreign Banks	Small Finance Banks	Payment Banks	All Banks
2005-06	8	16	1	2	4				31
2006-07	6	36		6	10	1			59
2007-08	26	47		10	3				86
2008-09	37	80	1	30	14				162
2009-10	64	123	7	40	23				257
2010-11	38	116	5	25	25				209
2011-12	31	203	9	55	27				325
2012-13	60	182	6	142	59				449
2013-14	111	317	17	117	32				594
2014-15	28	206	13	158	29				434
2015-16	35	102	12	93	381				623
2016-17	35	77	4	30	80		1		227
2017-18	7	33	1	4	86		56	32	219
2018-19	1	17		1	57		107	38	221

Source : Quarterly Statistics on Deposits and Credit of Scheduled Commercial Banks, Reserve Bank of India (RBI)

Among the 221 new branches opened in the state during 2018-19, 42 percent were opened in semi-urban areas and 30 percent in the rural areas (Table 10.2). From Table 10.1, one can also notice that the Small Finance Banks have expanded considerably in Bihar in 2018-19. Out of 221 new branches opened in 2018-19, no less than 107 (48.4 percent) were opened by Small Finance Banks. This reflects the faster growth of the Small Finance Banks in Bihar.

Table 10.2 : Number of Branches Opened by the SCBs in 2018-19

Area	Number	Percentage
Rural	67	30.3
Semi-urban	92	41.7
Urban	46	20.8
Metropolitan	16	7.2
Total	221	100.0

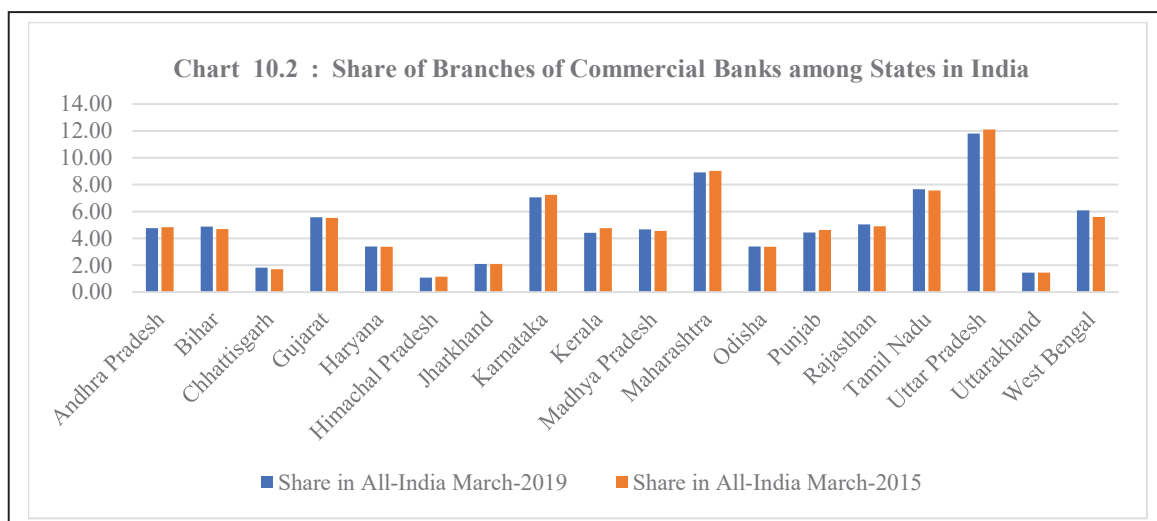


Source : Quarterly Statistics on Deposits and Credit of Scheduled Commercial Banks, RBI

Table 10.3 and Chart 10.2 shows the share of branches of commercial banks among states in India in 2015 and 2019. With a share of 4.9 percent in 2019, Bihar is at the 10th position in terms of share of branches of the commercial banks. This share has remained almost the same during the years 2015 and 2019. If one compares this share with the population share of Bihar in the population of the entire country (8.6 percent), it is observed that the bank branches in Bihar are serving a larger population than the national average. This clearly highlights the need to further improve the banking infrastructure in Bihar.

Table 10.3 : Share of Branches of Commercial Banks for Different States in India (2015 and 2019)

States	Share of Branches	
	March - 2015	March - 2019
Andhra Pradesh	4.8	4.8
Bihar	4.7	4.9
Chhattisgarh	1.7	1.8
Gujarat	5.5	5.6
Haryana	3.4	3.4
Himachal Pradesh	1.1	1.1
Jharkhand	2.1	2.1
Karnataka	7.2	7.1
Kerala	4.8	4.4
Madhya Pradesh	4.6	4.7
Maharashtra	9.0	8.9
Odisha	3.4	3.4
Punjab	4.6	4.4
Rajasthan	4.9	5.0
Tamil Nadu	7.6	7.6
Uttar Pradesh	12.1	11.8
Uttarakhand	1.5	1.4
West Bengal	5.6	6.1
Total	100.0	100.0



Source : Quarterly Statistics on Deposits and Credit of Scheduled Commercial Banks, RBI

Scheduled Commercial Banks (SCB)

The distribution of SCB branch offices in rural, semi-urban and urban areas and their growth in Bihar during 2013-19 is shown in Table 10.4. There were 7469 branches of the SCBs in Bihar at the end of 2018-19. The share of branches of the SCBs in the rural areas has shown a decline over the years. As of March 2019, 49.6 percent of the SCB branches were located in the rural areas, which was 59.6 percent in 2013. Correspondingly, the urban areas have seen an increase in their share in SCB branches, from 18.6 percent in 2013 to 20.8 percent in 2019. The semi-urban areas have also seen a significant increase in their share in the SCB branches over the years, from 21.8 percent in 2013 to 29.6 percent in 2019.

Table 10.4 : Distribution of Commercial Bank Branch Offices (2013-2019)

Years (End March)	Total	Growth Rate	Percentage distribution of branches by location			
			Rural	Semi-urban	Urban	All
2013	5270	8.4	59.6	21.8	18.6	100.0
2014	5908	12.1	58.7	23.0	18.3	100.0
2015	6297	6.6	57.9	23.1	19.0	100.0
2016	6661	5.8	55.4	25.2	19.4	100.0
2017	6844	2.7	51.0	28.5	20.5	100.0
2018	6905	0.9	51.0	29.0	20.0	100.0
2019	7469	8.2	49.6	29.6	20.8	100.0

Source : Quarterly Statistics on Deposits and Credit of Scheduled Commercial Banks, RBI

Table 10.5 shows the number of employees of the SCBs in different states and their percentage share in total employees of the SCBs in the country. Bihar with 48,136 employees of the SCBs ranked 12 among the states in terms of their share (3.5 percent) in total bank employees in March 2018, whereas it is the third most populous state in the country as per Census 2011. Although the

number of bank employees has increased over the years (42,500 in March 2016 and 48,136 in March 2018), the bank branches in the state remain more crowded than in the other states, due to lower share of Bihar in the total bank employees. Thus, apart from relatively less coverage, the branches of SCBs in Bihar are also comparatively under-staffed, compared to the national average.

Table 10.5 : Distribution of Employees of SCBs (March, 2018)

State	Officers	Share (percent)	Clerks	Share (percent)	Sub-ordinates	Share (percent)	Total	Share (percent)
Andhra Pradesh	30,609	3.6	16,972	4.7	6,887	4.3	54,468	4.0
Bihar	26,472	3.1	15,393	4.3	6,271	3.9	48,136	3.5
Chhattisgarh	11,172	1.3	5,314	1.5	2,036	1.3	18,522	1.3
Gujarat	45,386	5.3	18,688	5.2	9,409	5.8	73,483	5.3
Haryana	29,846	3.5	11,240	3.1	4,820	3.0	45,906	3.3
Himachal Pradesh	4,950	0.6	3,458	1.0	1,959	1.2	10,367	0.8
Jharkhand	12,569	1.5	7,533	2.1	2,926	1.8	23,028	1.7
Karnataka	61,790	7.2	26,546	7.4	12,185	7.5	1,00,521	7.3
Kerala	33,972	4.0	18,038	5.0	6,400	4.0	58,410	4.2
Madhya Pradesh	31,142	3.6	15,424	4.3	7,758	4.8	54,324	3.9
Maharashtra	1,58,568	18.5	41,647	11.6	17,627	10.9	2,17,842	15.8
Odisha	19,823	2.3	10,631	3.0	4,509	2.8	34,963	2.5
Punjab	32,494	3.8	13,552	3.8	6,893	4.3	52,939	3.8
Rajasthan	35,321	4.1	16,132	4.5	11,671	7.2	63,124	4.6
Tamil Nadu	78,156	9.1	32,286	9.0	10,101	6.2	1,20,543	8.7
Uttar Pradesh	70,823	8.2	37,655	10.5	17,513	10.8	1,25,991	9.1
Uttarakhand	8,207	1.0	4,860	1.4	2,341	1.4	15,408	1.1
West Bengal	54,789	6.4	20,094	5.6	11,155	6.9	86,038	6.2
All India	8,59,075	100.0	3,59,862	100.0	1,61,524	100.0	13,80,461	100.0

Source : Basic Statistical Returns of Scheduled Commercial Banks in India, 2018-19, RBI

Regional Rural Banks (RRB)

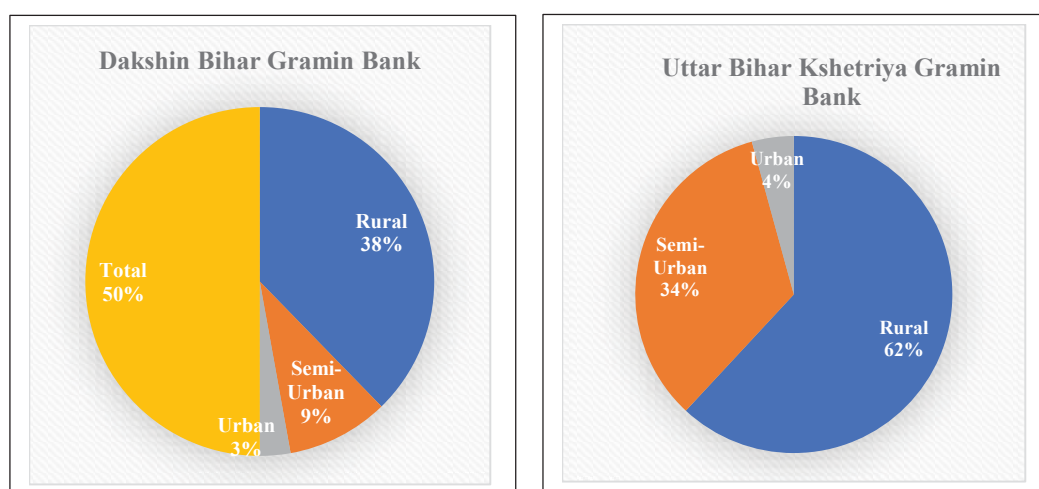
Two Regional Rural Banks, Dakshin Bihar Gramin Bank and Uttar Bihar Kshetriya Gramin Bank, are functioning in Bihar. The Dakshin Bihar Gramin Bank was created on January 1, 2019, after merging the Madhya Bihar Kshetriya Gramin Bank and the Bihar Kshetriya Gramin Bank. Table 10.6 shows the number of branches of these two RRBs in Bihar. Majority of these branches are in rural areas, followed by the semi-urban areas (Chart 10.3). Uttar Bihar Kshetriya Gramin Bank has 34 percent of its branches in semi-urban areas and 62 percent in rural areas. Dakshin Bihar Gramin Bank had 19 percent of its branches in semi-urban areas and 75 percent in the rural areas of the state. Overall, these banks have 69 percent of their branches in rural areas. Presence of a wide network of the RRBs can be used to further support the capital requirement for growth of the state.

Table 10.6 : Number of RRB Branches in Bihar (as on September, 2019)

Banks	Rural	Semi-Urban	Urban	Total
Dakshin Bihar Gramin Bank	813 (75.41)	204 (18.92)	61 (5.65)	1078 (100)
Uttar Bihar Kshetriya Gramin Bank	639 (61.9)	349 (33.8)	44 (4.3)	1032 (100.0)
Total	1452 (68.8)	553 (26.2)	105 (5.0)	2110 (100.0)

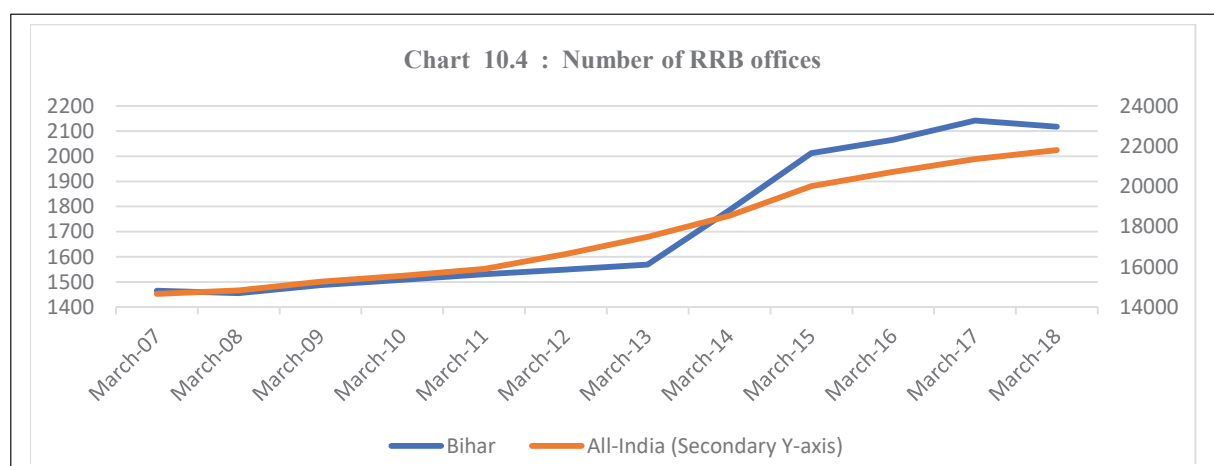
Note : Values in parenthesis are percentage distribution
Source : State Level Bankers' Committee

Chart 10.3 : Distribution of Branches of three RRBs in Bihar



Source : State Level Bankers' Committee report

There has been continuous increase in the number of offices of the RRBs in the country over the years (Chart 10.4). There was a sharp increase in the number of offices of the RRBs during the years 2013-14 and 2014-15 in Bihar, when it increased at the rate of 13.8 and 12.7 percent, respectively. With 2117 offices of the RRBs in the state, Bihar ranks second after Uttar Pradesh in the country in terms of the number of branches of RRBs.



Source : State Level Bankers' Committee report

Cooperative Banks

Data for the number of branches of the State Cooperative banks and the District Central Cooperative banks is shown in Table 10.7. It is observed that their presence in the state in terms of the number of branches has not changed in recent years. The share of Bihar in the number of branches of the cooperative banks in India has remained at only 2.1 percent during 2016-18. This shows the limited presence and role of these banks in Bihar, compared to the states like Maharashtra, Gujarat and Tamil Nadu.

Table 10.7 : Number of Branches of State and District Central Cooperative Banks (2016-2018)

State	State Cooperative Banks			District Central Cooperative Banks			Total		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Andhra Pradesh	7	14	14	378	397	404	385	411	418
Bihar	11	12	12	312	312	313	323	324	325
Gujarat	16	25	27	1322	1331	1367	1338	1356	1394
Haryana	14	14	14	621	625	627	635	639	641
Himachal Pradesh	227	227	227	261	274	249	488	501	476
Karnataka	42	42	42	715	729	742	757	771	784
Kerala	24	24	24	792	807	817	816	831	841
Madhya Pradesh	25	25	26	857	857	858	882	882	884
Maharashtra	48	51	55	3755	3729	3697	3803	3780	3752
Odisha	15	15	15	349	350	352	364	365	367
Punjab	19	18	18	816	817	817	835	835	835
Rajasthan	17	17	17	454	460	461	471	477	478
Tamil Nadu	47	47	47	812	844	849	859	891	896
Uttar Pradesh	29	29	29	1406	1406	1395	1435	1435	1424
Uttarakhand	16	16	16	255	261	269	271	277	285
West Bengal	48	48	48	313	318	318	361	366	366
All-India	1168	1197	1219	14241	14252	14293	15409	15449	15512

Source : National Federation of State Cooperative Banks (NAFSCOB)

Small Finance Banks (SFB)

Small Finance Banks (SFB) were given approval by the RBI in September 2015 with the objective of deepening financial inclusion by providing the banking services to the small and marginal farmers, migrant labourers, low-income households, small businesses and other unorganised entities. Within three years of their activity, the SFBs have made significant progress in Bihar. Their CD ratio is much higher than all other banking institutions in the state. Apart from the SFBs,

the Payment Banks have also started functioning in the state. As of March 2019, SFBs had 163 offices in the state and the Payment Banks had 70 offices.

Microfinance Institutions

Microfinance Institutions play an instrumental role in providing credit to low-income households. Such credit is crucial for employment, economic development and overall empowerment of these households. It opens the credit market to the poor households with little or no collateral, which unleashes their productive capacities by ensuring the supply of necessary capital through small loans. These institutions are playing a key role in Bihar in improving the level of financial inclusion in the state. The Self-Help Groups (SHGs) and the SHG-Bank Linkage Programme (SHG-BLP), implemented by Scheduled Commercial Banks, Regional Rural Banks and Cooperative Banks, have emerged as the major microfinance programme in the country. As per the NABARD report on Microfinance, the SHG Bank Linkage Programme (SHG-BLP) now covers 100.14 lakh SHGs in India as on March 2019, covering more than 12 crore households for social, economic and financial empowerment of the rural poor, especially the women. Also, as per the Global Findex Database 2017 of the World Bank, India's gender gap in access to financial service has come down to 6 percent. The NABARD report reiterates that the microfinance initiatives have played a major role in bringing the unbanked women to the mainstream by bringing them into the domain of SHG-BLP on a continuous basis. There was a net addition of 12.7 lakh savings-linked SHGs in 2018-19 in the country. As of March 2019, there were 7.70 lakh SHGs in Bihar which had a total saving of Rs. 1508.59 crore with the Commercial Banks, RRBs and the Cooperative Banks. Bihar has made phenomenal success in improving the financial inclusion through the formation of SHGs, thanks to the initiatives by JEEViKA, the rural livelihood mission of the State Government.

10.2 Deposits, Credits and Credit-Deposit Ratio

The banks play a crucial role in deposit mobilisation and facilitate credit to the borrowers. Table 10.8 shows the deposits and credit of the SCBs in Bihar vis-à-vis other major states of the country as of March 2018 and 2019. There is an increase of Rs. 36,148 crore in the deposits in SCBs in Bihar between 2017-18 and 2018-19 (11.4 percent). During the same period, credit provided by the SCBs expanded by Rs. 18,776 crore, an increase of 18.5 percent in the state. At the all-India level, deposit in the SCBs increased by 9.4 percent and the credit expanded by 13.1 percent. The share of Bihar in the total deposit and credit in India has remained at 2.8 percent and 1.2 percent respectively during 2017-18 and 2018-19. Compared to its population share in the country, Bihar's share in both deposit and credit in the SCBs has remained much lower. This can be partly due to lower per capita income of Bihar compared to other states.

Table 10.8 : State-wise Deposits and Credit of Scheduled Commercial Banks in India (2017-18 and 2018-19)

States	Deposits (Rs. crore)		Credits (Rs. crore)		CD Ratio	
	2017-18	2018-19	2017-18	2018-19	2017-18	2018-19
Andhra Pradesh	276527 (2.4)	300863 (2.4)	310457 (3.6)	366563 (3.7)	112.3	121.8
Bihar	317131 (2.8)	353279 (2.8)	101511 (1.2)	120287 (1.2)	32.0	34.0
Chhattisgarh	133067 (1.2)	142551 (1.1)	83352 (1)	89824 (0.9)	62.6	63.0
Gujarat	643747 (5.6)	674702 (5.4)	482779 (5.6)	531396 (5.4)	75.0	78.8
Haryana	367362 (3.2)	409923 (3.3)	218336 (2.5)	247345 (2.5)	59.4	60.3
Himachal Pradesh	85753 (0.7)	95522 (0.8)	26479 (0.3)	29424 (0.3)	30.9	30.8
Jharkhand	199475 (1.7)	218508 (1.7)	54639 (0.6)	60196 (0.6)	27.4	27.5
Karnataka	840424 (7.3)	934748 (7.4)	586740 (6.8)	648887 (6.6)	69.8	69.4
Kerala	440361 (3.8)	495741 (3.9)	281384 (3.2)	325280 (3.3)	63.9	65.6
Madhya Pradesh	340117 (3.0)	368521 (2.9)	221512 (2.6)	249290 (2.5)	65.1	67.6
Maharashtra	2289301 (19.9)	2549943 (20.3)	2404766 (27.7)	2714809 (27.7)	105.0	106.5
Odisha	271019 (2.4)	309618 (2.5)	100653 (1.2)	119090 (1.2)	37.1	38.5
Punjab	350459 (3.1)	379505 (3)	221388 (2.5)	228604 (2.3)	63.2	60.2
Rajasthan	336820 (2.9)	378636 (3)	254382 (2.9)	307134 (3.1)	75.5	81.1
Tamil Nadu	725810 (6.3)	798765 (6.4)	784172 (9)	876433 (8.9)	108.0	109.7
Uttar Pradesh	957832 (8.3)	1040758 (8.3)	391892 (4.5)	439716 (4.5)	40.9	42.2
Uttarakhand	123440 (1.1)	137027 (1.1)	44669 (0.5)	51574 (0.5)	36.2	37.6
West Bengal	722699 (6.3)	777410 (6.2)	364454 (4.2)	379817 (3.9)	50.4	48.9
All-India	11479288 (100)	12558671 (100)	8682573 (100)	9818367 (100)	75.6	78.2

Note : Figures in Parenthesis indicate share of the states

Source : Statistical Tables Relating to Banks in India, 2018-19, RBI

Credit-Deposit (CD) Ratio

The CD ratio of the Scheduled Commercial Banks (SCB) is an indicator of the involvement of banks in the economic development of the state. It depends mostly on the level of economic activity and the credit absorption capacity of a particular state. The CD ratio shows the bank's total loans as a percentage share of its deposits for the same period. In other words, CD ratio of the state denotes how much a bank lends out of the deposits it has mobilized from the state. The low ratio indicates banks are not making full use of their resources for promoting economic activity in the state. As highlighted earlier, the availability of credit is key to boost the entrepreneurial activity in the state.

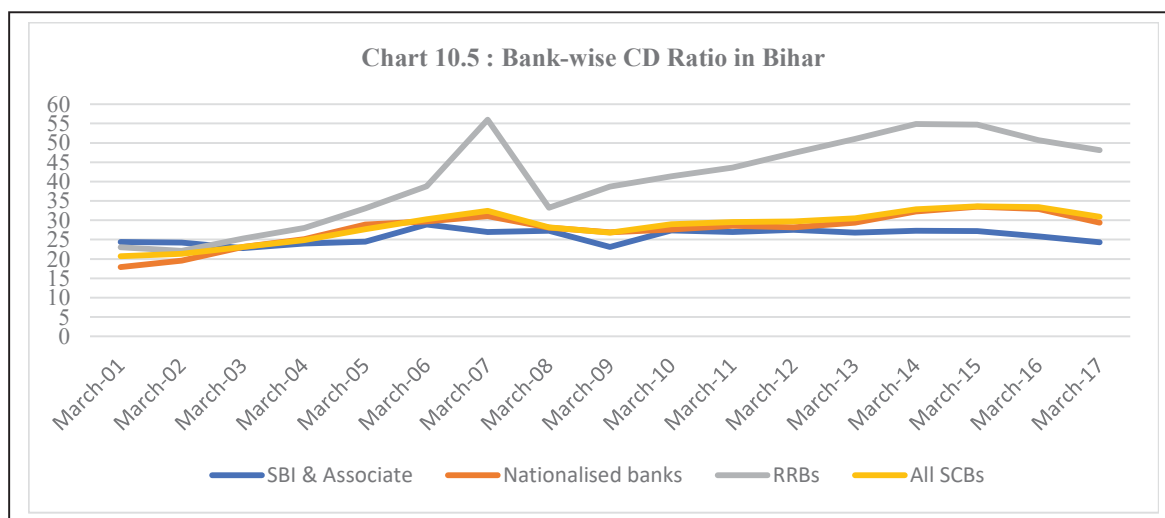
The CD ratio of the SCBs in Bihar during 2018-19 increased to 34.0 percent from 32.0 percent in 2017-18. However, it is still lower than the CD ratio of 121.8, 106.5 and 109.7 percent for Andhra Pradesh, Maharashtra and Tamil Nadu, respectively (Table 10.8). Only Jharkhand and Himachal

Pradesh are among the major states which have lower CD ratios than Bihar. The CD ratio at all-India level increased from 75.6 percent in 2017-18 to 78.2 percent in 2018-19.

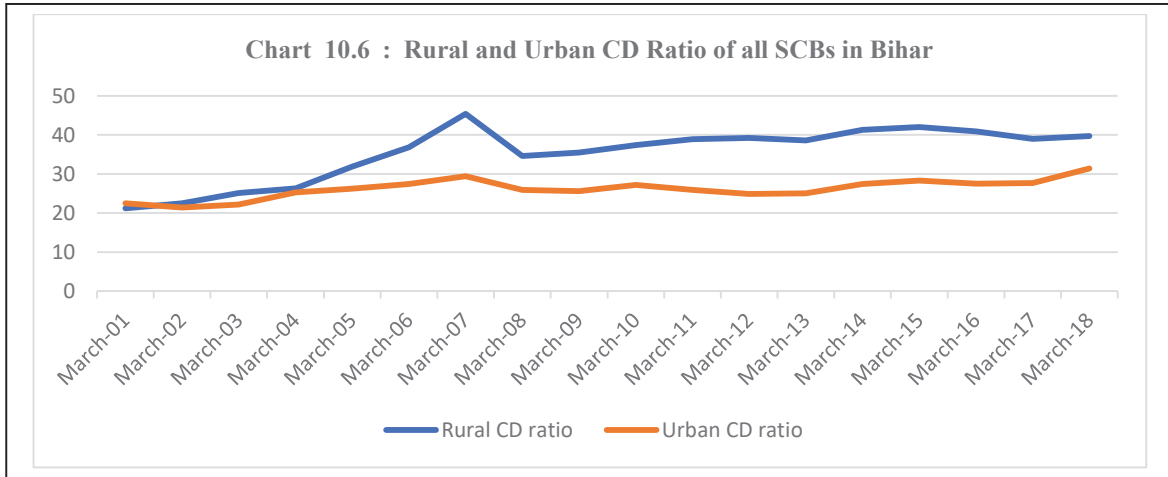
Assuming that there is an unmet demand for the credit in the state, the low CD ratio needs serious attention of the SCBs doing business in Bihar. For the given level of deposit in the SCBs in Bihar, if the state has to achieve the national average CD ratio of 78.2 percent, the SCBs need to provide additional credit of Rs. 1.56 lakh crore. This could provide a much-needed boost to the investment in the state. The low disbursement of credit by the SCBs is also a major concern for the state because it indicates that the credit requirements of the state are being met at higher rates of interest from alternative sources of financing, which increases the cost of doing business in the state. Further, this also indicates that deposits collected from the state are being used to provide credit in other states by the SCBs, which is indeed the flight of capital away from a poor state like Bihar.

As per the SLBC report, there are 16 districts in Bihar that have CD ratio of the SCBs lower than 40 per cent (as on September 2019). Among the banks, the RRBs have the highest CD ratio and it is increasing over the years, whereas the SBI and its associate banks have shown declining trends (Chart 10.5).

The CD ratios for the rural and the urban areas were almost the same, around 25 percent, till 2004. However, it increased to 39.7 and 31.4 percent in rural and urban areas, respectively in March 2018 (Chart 10.6). The CD ratio has always remained higher for the rural areas than the urban areas in Bihar since 2004, largely due to high CD ratio of the RRBs and their larger presence in the rural areas. This may also be on account of the targeted lending schemes in rural areas. Among the banks in Bihar, the CD ratio for the RRBs is the highest and it increased from 23.0 percent in March 2001 to 52.1 percent in March 2018.



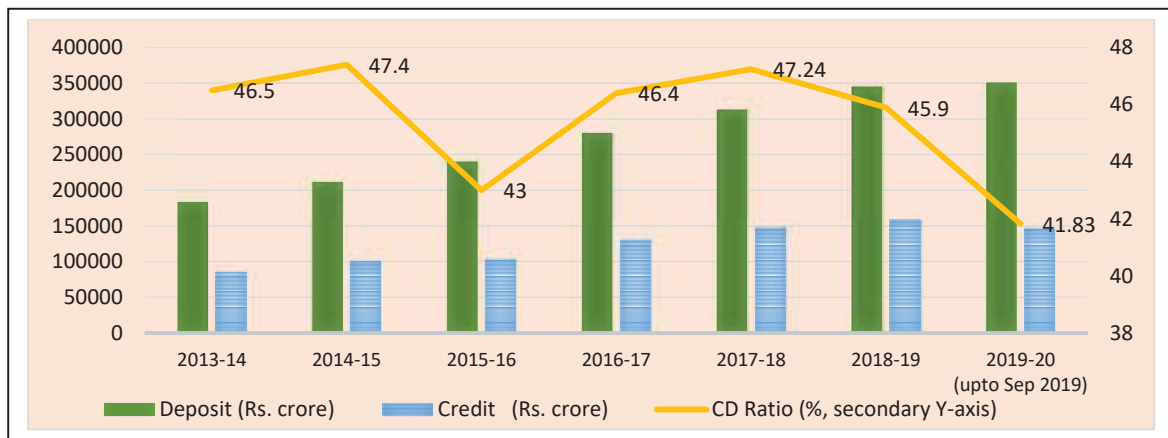
Source : State Level Bankers' Committee report



Source : State Level Bankers' Committee report

The CD ratio of all the banks in the state over the years is reported in Table 10.9. The CD ratio for Bihar has increased from 40.6 percent in 2012-13 to 45.9 percent in 2018-19. For the current year (2019-20), the CD ratio was 41.83 percent in September 2019, which is lower than in the previous year (Chart 10.7). The credit provided by the banks has not increased over the years at a pace which could lead to Bihar achieving the national average of the CD ratio.

Chart 10.7 : Credit, Deposit and CD Ratio in Bihar (as on September 2019)



Source : State Level Bankers' Committee report

Table 10.9 : Credit-Deposit (CD) Ratio of All Banks in Bihar (2013-14 to 2019-20)

2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 (upto Sep 2019)
Deposit (Rs. crore)							
161036	183458	211302	240288	280370	312829	345234	351165
Credit (Rs. crore)							
65364	85334	100261	103238	129969	147797	158469	146900
CD Ratio (%)							
40.6	46.5	47.4	43.0	46.4	47.24	45.9	41.8

Source : State Level Bankers' Committee report

The bank-wise CD ratios in September 2019 are shown in Table 10.10. The Small Finance Banks (SFB) with the CD ratio of 452.1 percent is an outlier among the banking institutions in Bihar. This also highlights the fact that there is the unused capacity to absorb more credit in Bihar, and the SCBs with the wider network than the SFBs could fill this gap. The SFBs are, however, new in the business and have a lower share in the deposit and credit market in the state. They received Rs. 720 crore as deposit and provided a credit of Rs 3257 crore in the state, as on September 2019.

Table 10.10 : Bank Deposits, Credit and CD Ratio (September 2019)

Bank	Deposits (Rs. thousand crore)	Advances (Rs. thousand crore)	CD Ratio (%)
Commercial Banks	311378	123292	39.6
Co-operative Banks	4086	2232	54.6
RRBs	34981	18119	51.8
Small Finance Banks	720	3257	452.1
Total	351165	146900	41.8
RIDF	—	6804	—
Total (Advances +RIDF)	351165	153704	43.8
Investment	—	8719	—
Grand Total (Adv.+RIDF+Invest.)	351165	162423	46.2

Source : State Level Bankers' Committee Report

Table 10.11 shows the CD and the ICD (Investment plus Credit to Deposit) ratios in Bihar in 2018-19 by the bank groups and their locations. The Small Finance Banks with the CD ratio of 728.8 percent are the outliers among the banks in the state. They provided a credit of Rs. 963.29 crore in the rural areas against the deposit of only Rs. 3.22 crore. Far behind the Small Finance Banks, there are Cooperative Banks, RRBs and Scheduled Commercial Banks with the CD ratios of 88.4 percent, 52.1 percent and 36.9 percent, respectively. Among these banks, the Cooperative Banks have higher CD ratio in urban areas compared to the rural and semi-urban areas. The other banks have a higher CD ratio for the rural areas compared to the urban areas.

It is often argued that the Investment plus Credit to Deposit (ICD) ratio is a better indicator of the total involvement of the banks in the economic activities in the state, as the banks assist the economy not simply by giving credit, but also by investing in State Government securities and in shares and bonds of state undertakings, quasi-government bodies and joint-stock companies. The ICD ratio for the Cooperative Banks, RRBs and Commercial Banks during 2018-19 in the state was 88.5, 52.1 and 41.5 percent, respectively. Thus, it is observed that the performance of the banks in Bihar compared to other major states does not change much, even if one takes into account the ICD ratio.

Table 10.11 : Bank Group-wise and Area-wise Credit-Deposit Ratio (2018-19)

Bank Groups	Area	Deposits (Rs. crore)	Credits (Rs. crore)	CD Ratio	Investment (Rs. crore)	ICD Ratio
Scheduled Commercial Bank	Rural	54288.22	23116.85	42.6	—	—
	Semi-Urban	75828.12	28439.28	37.5	—	—
	Urban	176332.9	61440.66	34.8	—	—
	Total	306449.3	112996.8	36.9	6251.3	41.5
RRB	Rural	22261.48	12881.71	57.9	—	—
	Semi -Urban	7114.69	3519.99	49.5	—	—
	Urban	4685.09	1330.81	28.4	—	—
	Total	34061.26	17732.51	52.1	—	52.1
Cooperative Bank	Rural	1952.85	1729.95	88.6	—	—
	Semi-Urban	1521.5	1247.86	82.0	—	—
	Urban	883.15	873.23	98.9	—	—
	Total	4357.5	3851.04	88.4	5.0	88.5
Small Finance Bank	Rural	3.22	963.29	29915.8	—	—
	Semi-Urban	70.73	763.38	1079.3	—	—
	Urban	291.86	939.42	321.9	—	—
	Total	365.81	2666.09	728.8	—	728.8
All Banks	Rural	78505.77	38691.8	49.3	—	—
	Semi-Urban	84535.04	33970.51	40.2	—	—
	Urban	182193	64584.12	35.4	—	—
	Total	345233.8	137246.4	39.8	6256.4	43.8

Source : State Level Bankers' Committee Report

The CD ratio discussed above is the ratio which has conventionally been calculated on the basis of credit sanctions by the banks in the state. This tells us the extent to which the banks employ the deposits mobilized in a state to meet its credit demands. Another way to look at the issue is by using credit utilisation in place of credit sanction. While a low CD ratio based on credit sanctions would indicate the migration of deposits from one state to another, a comparatively lower CD ratio based on credit utilization would indicate the migration of credit meant for investment in the state. Table 10.12 presents the CD ratio for the major states in India, based on both credit sanction and credit utilisation. The two ratios are obviously the same at the all-India level; however, there is variation between these two ratios in different states. In the case of Bihar, the CD ratio of SCBs in terms of utilisation is higher than the ratio in terms of sanction, but the difference is very marginal.

Table 10.12 : Credit-Deposit (CD) Ratio of the Scheduled Commercial Banks (2015 to 2018)

	2015		2016		2017		2018	
	As per Sanction	As per Utilization	As per Sanction	As per Utilization	As per Sanction	As per Utilization	As per Sanction	As per Utilization
Andhra Pradesh	105.3	108.3	106	109.6	101.1	104.4	112.6	114.1
Bihar	33.6	34.3	33.4	34.5	30.9	32.0	32.2	34.0
Gujarat	72.7	79.0	75.4	82.4	68.9	75.2	75.6	82.2
Haryana	75.8	85.2	69.9	82.6	59.1	69.1	58.6	67.6
Himachal Pradesh	35.3	36.6	32.9	33.6	29.7	31.1	31.1	31.8
Jharkhand	29.6	30.6	29.6	30.7	27.1	29.1	27.7	30.6
Karnataka	67.7	72.6	70.1	75.4	67	71.2	69.7	75.7
Kerala	64.6	65.4	62.1	63.0	59.8	61.2	63.8	65.5
Madhya Pradesh	54.8	57.6	61.2	63.5	60.9	63.4	65.1	67.7
Maharashtra	92.0	82.7	102.9	91.4	106	94.0	106.9	94.1
Odisha	41.9	43.9	40.8	43.3	38.1	40.5	37.6	40.5
Punjab	75.1	76.8	69.8	71.7	69	71.2	63.5	68.3
Rajasthan	86.2	90.1	72.4	76.3	67.8	71.6	76.6	80.7
Tamil Nadu	119	117.5	113.7	112.4	105.8	103.8	113.5	110.8
Uttar Pradesh	45.4	48.9	44.6	49.6	40.0	43.0	41.2	43.9
Uttarakhand	34.5	35.2	34.9	35.8	34.3	35.3	36.4	37.8
West Bengal	57.8	60.3	55.1	57.3	50.3	52.5	51.1	53.8
All-India	77.1	77.1	78.4	78.4	73.8	73.8	76.7	76.7

Source : Report on Trend and Progress of Banking in India 2018-19, RBI

If we look at the CD ratio in Bihar, there is huge variation among districts. Table 10.13 presents the CD ratios across the districts in Bihar. As on September 2019, there are 16 districts with a CD ratio lower than 40 percent and 17 districts have CD ratios lower than the state average. None of the districts has a CD ratio higher than the all-India average. Purnea has the highest CD ratio of 68.5 percent and Saran has the lowest at 27.0 percent. Sheohar with the CD ratio of 57.8 percent is at the distant second position. Munger, Bhojpur and Saran are districts with their ratios lower than even 30 percent.

Table 10.13 : District-wise Credit-Deposit (CD) Ratio (2017-18 to 2019-20)

District	2017-18	2018-19	2019-20 (Sep. 19)	District	2017-18	2018-19	2019-20 (Sep. 19)
Patna	38.7	35.9	36.0	Darbhanga	32.5	33.4	32.8
Nalanda	37.9	34.7	32.4	Madhubani	33.6	34.2	32.5
Bhojpur	30.1	29.4	28.5	Samastipur	47.7	45.4	46.0
Buxar	42.8	44.2	40.4	Begusarai	49.5	53.4	53.5
Rohtas	46.6	44.9	44.7	Munger	30.3	31.4	28.7
Kaimur	57.8	52.6	57.6	Sheikhpura	40.3	41.9	42.2
Gaya	36.6	38.0	39.4	Lakhisarai	37.0	39.1	37.1
Jehanabad	34.5	34.8	32.1	Jamui	40.9	45.4	46.2
Arwal	38.5	35.0	31.8	Khagaria	55.1	53.4	57.0
Nawada	42.9	39.0	39.6	Bhagalpur	53.2	37.1	37.0
Aurangabad	42.0	38.2	45.7	Banka	43.8	46.8	48.6
Saran	28.4	29.2	27.0	Saharsa	44.6	45.1	47.4
Siwan	28.9	31.5	33.7	Supaul	52.8	49.2	42.7
Gopalganj	29.4	34.3	33.9	Madhepura	47.6	48.9	45.3
West Champaran	48.7	52.3	53.3	Purnea	65.1	72.0	68.5
East Champaran	44.0	48.6	49.8	Kishanganj	59.2	59.1	56.0
Muzaffarpur	46.3	49.1	48.8	Araria	51.0	53.9	55.1
Sitamarhi	35.6	38.6	35.6	Katihar	45.7	47.5	47.1
Sheohar	47.5	46.6	57.8				
Vaishali	39.1	39.5	50.9	Bihar	40.6	39.8	41.8

Source : State Level Bankers' Committee Report

The bank-wise CD ratios of the Public Sector Banks in Bihar are shown in Table 10.14. UCO bank has the highest CD ratio of 56.8 percent, whereas the Union Bank of India has the lowest (27.7 percent). Among the lead banks, the CD ratios of State Bank of India, Punjab National Bank and Central Bank of India have declined over the last five years in Bihar. Except for Corporation Bank, Bank of Maharashtra and UCO bank, the performance of the public sector banks has been disappointing in terms of providing adequate credit in the state.

Table 10.14 : Credit-Deposit (CD) Ratio of Public Sector Banks in Bihar (2014-15 to 2019-20)

Banks	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 (upto Sep. 19)
Lead Banks						
State Bank of India	37.5	36.0	35.5	35.2	31.6	31.4
Central Bank of India	37.2	33.0	35.2	35.2	31.4	29.4
Punjab National Bank	40.6	41.9	34.4	37.8	31.2	29.3
Canara bank	40.2	43.7	40.0	49.2	49.0	50.0
UCO Bank	39.3	40.7	42.8	43.1	57.0	56.8
Bank of Baroda	34.8	41.6	40.2	40.5	40.6	42.5
Union Bank of India	41.1	42.1	45.7	41.1	29.7	27.7
Other Banks						
Bank of India	38.5	40.3	40.2	40.3	35.0	28.2
Allahabad Bank	41.8	42.8	38.2	40.4	40.5	39.9
Andhra Bank	16.8	20.7	63.0	45.9	40.0	53.7
Bank of Maharashtra	32.5	67.4	50.2	59.6	62.6	53.0
Corporation Bank	89.2	72.0	90.9	70.2	57.9	40.8
Dena Bank	30.3	33.1	40.0	40.2	26.6	—
Indian Bank	68.8	79.4	70.6	33.3	30.0	28.4
Indian Overseas bank	60.2	73.0	54.1	42.4	34.5	38.6
Oriental Bank of Commerce	39.9	47.3	47.0	42.3	45.5	47.3
Punjab and Sind Bank	108.7	21.8	9.8	36.2	39.4	48.3
Syndicate Bank	40.9	41.0	26.4	33.6	32.6	33.4
United Bank of India	53.9	52.1	50.9	49.8	47.7	47.5
All Public Sector Banks	41.9	43.0	41.9	43.1	42.0	34.4

Source : State Level Bankers' Committee Report

The deposit, advances and CD ratios of private sector banks, RRBs and Small Finance Banks (SFB) in Bihar are shown in Table 10.15. The CD ratio for 12 private banks that have offices in Bihar varies between 5.3 and 465.7 percent as on September 2019. The ratio for SFBs varies between 86.9 and 708.2 percent. Among the private sector banks, IndusInd bank is the best performer in the state, followed by Bandhan Bank with the CD ratios of 465.8 and 197.8 percent respectively. IndusInd Bank has made a significant jump in its CD ratio which zoomed from 224.6 percent in 2018 to 465.7 percent in 2019. Among the major private sector banks, the performance of IDBI Bank, AXIS Bank and Kotak Mahindra Banks is poor given their CD ratios of 40.1, 48.9 and 33.1 percent, respectively. The overall CD ratio of private sector banks in the state in 2019 was 79.4 percent, which is more than the double of 34.4 percent for the Public Sector Banks. However, the private banks have limited presence compared to the public sector banks in terms of

the banking infrastructure in the state. Hence, it is observed that there are need and scope for the public sector banks to improve their performance in terms of providing credit in Bihar.

The RRBs in the state are doing better than other public sector banks; however, there is scope for improvement in credit delivery by these banks also. The RRBs have a wider presence in terms of branches in the state. For improving credit delivery in the state, one ray of hope is the Small Finance Banks. Although they are new in the banking business and also their size of business in the state is presently small compared to other banks, their performance is much better than other banks in terms of providing credit. The CD ratio of the SFBs in September 2019 was 452.1 percent and Utkarsh SFB had the highest CD ratio of 708.2 percent (Table 10.15).

Table 10.15 : Deposit, Advances and CD Ratio of Private Banks, RRBs and SFBs in Bihar (2018 and 2019)

	As on 30 September 2018			As on 30 September 2019		
	Deposits (Rs. Lakh)	Advances (Rs. Lakh)	CD ratio (percent)	Deposits (Rs. Lakh)	Advances (Rs. Lakh)	CD ratio (percent)
Private Banks						
IDBI Bank	444643	187414	42.2	449901	181949	40.4
ICICI Bank	1011090	550172	54.4	977506	705002	72.1
Federal Bank	38514	16076	41.7	44504	9811	22.0
Jammu & Kashmir Bank	0	0	0	9485	10140	106.9
South Indian Bank	0	0	0	26205	1383	5.3
AXIS Bank	607353	284405	46.8	699649	342313	48.9
HDFC Bank	1017866	524563	51.5	928466	698248	75.2
IndusInd Bank	68754	154186	224.3	98095	456805	465.7
Karnataka Bank	2328	469	20.2	2492	664	26.6
Kotak Mahindra Bank	0	0	0	108886	36079	33.1
Yes Bank	37912	6958	18.4	50809	12853	25.3
Bandhan Bank	158086	317248	200.7	205250	406090	197.8
Total: Private Sector Banks	3386546	2041491	60.3	3601248	2861337	79.4
Total: Public Sector Banks	25319948	8871840	35.0	27536565	9467828	34.4
Total: Commercial Bank	28706494	10913331	38.0	31137813	12329165	39.6
Total: Cooperative Bank	383625	289998	75.6	408595	223162	54.6
RRBs						
Madhya Bihar KGB	1137084	532105	46.8	1894832	973655	51.4
Bihar KGB	548023	367240	67.0	--	--	--
Uttar Bihar KGB	1443543	765558	53.0	1603279	838258	52.3
Total: RRBs	3128650	1664903	53.2	3498111	1811913	51.8
Small Finance Bank (SFB)						
Jana SFB	0	0	0	24767	21527	86.9
Utkarsh SFB	20454	151629	741.3	32639	231163	708.2
Ujjivan SFB	0	0	0	14634	73030	499.0
Total: Small Finance Banks	20454	151629	741.3	72040	325720	452.1

Source : State Level Bankers' Committee Report

To judge the adequacy of credit, one can also examine the Credit-GSDP ratio and this ratio in Bihar has remained almost constant in the last four years (Table 10.16). From this, one can again conclude that there is a need to improve the provisioning of credit through the financial institutions in Bihar in order to reach the national-level average of growth and development.

Table 10.16 : Credit-GSDP Ratio in Bihar (2015-16 to 2018-19)

	2015-16	2016-17	2017-18	2018-19
Credit-GSDP ratio (%)	27.9	27.6	27.7	27.8
CD ratio (%)	43.0	41.9	45.4	44.1

Source : State Level Bankers' Committee Report and Calculations

The bank-wise percentage share of deposits and advances in Bihar for the last three years is shown in Table 10.17. As of September 2019, the Public Sector Banks have the highest share in both the deposit and advances in Bihar, followed by the private banks and the RRBs. However, the share of Public Sector Banks has fallen in the last three years. The drop in their share is more in the advances, which has decreased from 73.0 percent in 2017 to 64.4 percent in 2019. The reduced share of the public sector banks has been compensated by the private sector banks and the small finance banks. It is observed that the private banks and the small finance banks have made significant progress in providing credit in the state, whereas the performance of the public sector banks has been disappointing.

Table 10.17 : Bank-wise Share of Deposit and Advances in Bihar (2017-2019)

	Deposits			Advances		
	Sep-17	Sep-18	Sep-19	Sep-17	Sep-18	Sep-19
Public Sector Banks	80.8	78.5	78.4	73.0	68.1	64.4
Private Banks	8.0	10.5	10.3	12.6	15.7	19.5
Cooperative Banks	0.9	1.2	1.2	1.5	2.2	1.5
RRBs	10.3	9.7	10.0	12.9	12.8	12.3
Small Finance Banks	0.0	0.1	0.2	0.0	1.2	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source : State Level Bankers' Committee Report

10.3 Achievements under Annual Credit plan (ACP)

Table 10.18 shows the sectoral share of advances under the Annual Credit Plan (ACP) in the state. The share of priority sector in total advances in the state has decreased in the last three years. It has come down from 75.0 percent in 2016-17 to 71.5 percent in 2018-19. The share of the non-

priority sector has correspondingly increased from 25.0 percent to 28.5 percent during the same period.

The overall achievement of the ACPs in the state has dropped to 84.3 percent in 2018-19 from 90.8 percent in 2017-18. The achievement of ACPs in non-priority sectors has remained higher compared to the priority sectors. It was 91.0 percent and 81.6 percent for the priority and non-priority sectors respectively in 2018-19. Both the sectors have seen a drop in achievements in the ACPs over the years. The drop was more in the priority sectors, where it decreased from 86.5 percent in 2016-17 to 81.6 percent in 2018-19.

Among the priority sectors, Agriculture has the highest share in total credit. However, its share in the overall credit has come down marginally from 48.0 percent in 2016-17 to 46.2 percent in 2018-19. The reduced space for Agriculture in the total credit has been occupied by the non-priority sector. The share of Small and Medium Enterprises (SME) in total advances at 15.4 percent in 2018-19 has remained almost the same in the last three years. The SME sector has seen the highest achievement of the ACPs in Bihar (99.1 percent in 2016-17 and even higher at 111.6 percent in 2018-19). During the same period, the achievement of ACPs in the Agriculture sector has seen a drop of 12.9 percentage points, from 85.6 percent to 72.7 percent.

Table 10.18 : Sectoral Share of Advances under Annual Credit Plans (ACP) (2016-17 to 2018-19)

	ACP Target (Rs. crore)			Achievement (percentage)			Share in Advances (Percentage)		
	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
Priority Sector									
Agriculture	48000	49000	60000	85.6	86.0	72.7	48.0	44.5	46.2
Small and Medium Enterprises	15000	17000	20000	99.1	111.6	118.0	15.0	15.5	15.4
Other Priority Sector	12000	13000	13000	74.7	75.2	66.7	12.0	11.8	10.0
Sub-Total	75000	79000	93000	86.5	89.8	81.6	75.0	71.8	71.5
Non-Priority Sector									
Sub-Total	25000	31000	37000	92	93.6	91.0	25.0	28.2	28.5
Total	100000	110000	130000	87.9	90.8	84.3	100.0	100.0	100.0

Source : State Level Bankers' Committee Report

Table 10.19 shows the growth of overall credit provided for the target level of ACPs in Bihar. From the table, it is seen that the target was set at 18.2 percent higher than the previous year in 2018-19, but the actual credit grew at only 9.7 percent which was lower than the growth rate of 13.6 percent observed in the previous year (2017-18).

Table 10.19 : Credit Target under ACP and Their Achievement (2017-18 and 2018-19)

	2017-18	2018-19
Credit Target (Rs. crore)	110000	130000
Annual Credit (Rs. crore)	99880	109590
Achievement (Percentage)	90.8	84.3
Growth in Credit Target	10.0	18.2
Growth in Annual Credit	13.6	9.7

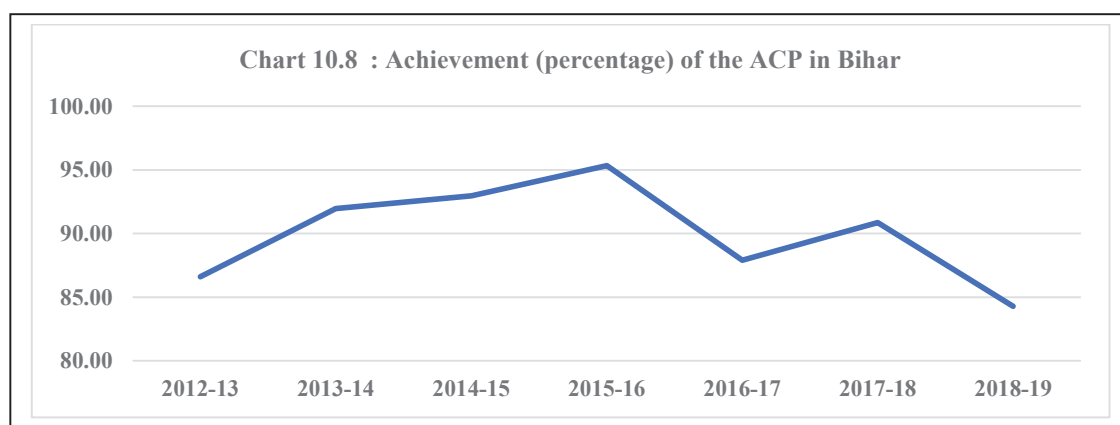
Source : State Level Bankers' Committee Report

Table 10.20 shows the target and achievement under ACP in Bihar during 2012-13 to 2018-19. The actual credit flow under the ACP in the state was Rs. 1,09,582 crore in 2018-19, after increasing steadily over the years. However, achievement levels have fluctuated over the years, ranging from 84.3 percent (in 2018-19) to 95.3 percent (in 2015-16) (see Chart 10.8.)

Table 10.20 : ACP Achievement - All Banks (2012-13 to 2018-19)

Year	Target (Rs. crore)	Achievement (Rs. crore)	Achievement (percentage)
2012-13	51400	44521	86.6
2013-14	62000	57007	91.9
2014-15	74000	68797	93.0
2015-16	83999	80084	95.3
2016-17	100000	87909	87.9
2017-18	110000	99934	90.8
2018-19	130000	109582	84.3

Source : State Level Bankers' Committee Report



Source : State Level Bankers' Committee Report

Table 10.21 shows the bank category-wise ACP targets and their achievement in Bihar. Small Finance Banks have shown the highest achievement in the ACP target in the state. However, their share in the overall advances in the state is small, compared to the Commercial Banks and the RRBs. The achievements of the Commercial Banks and the RRBs were 82.1 and 78.4 percent respectively in 2018-19; these achievement levels are significantly lower than 90.2 percent and 86.3 percent in 2017-18. The Commercial Banks, specifically the public sector banks, and the RRBs which together occupy a larger share in the deposit and credit market in the state have failed in achieving their ACP targets. More than that, their performance has worsened in 2018-19 over the previous year.

Table 10.21 : Bank-wise ACP target and its achievement in Bihar (2017-18 and 2018-19)

Agencies	Target (Rs. crore)	Achievement (Rs. crore)	Achievement (percentage)	Target (Rs. crore)	Achievement (Rs. crore)	Achievement (percentage)
	2017-18			2018-19		
Commercial Bank	86044	77594	90.2	101331	83226	82.1
Regional Rural Bank	22920	19770	86.3	26437	20730	78.4
Cooperative Bank	1036	2570	248.1	1980	2821	142.5
Small Finance Bank	—	—	—	252	2805	1113.1
Total	110000	99934	90.8	130000	109582	84.3

Source : State Level Bankers' Committee Report

The credit flow to the Agriculture sector in Bihar is shown in Table 10.22. The total credit flow to the Agriculture sector in the state under the ACP was Rs 41,798 crore, which is marginally lower than Rs. 42,161 crore in the previous year. Moreover, the achievement of the targets under the ACP in Bihar has seen a significant decline for the agriculture sector. The overall target under the ACP for the agriculture sector was Rs. 60,000 crore in 2018-19, which is higher than the target of Rs. 49,000 crore for 2017-18. However, the achievement percentage of the target set for the Agriculture sector dropped from 86.0 percent in 2017-18 to 70.7 percent in 2018-19. Among the banks, Commercial Banks were the worst performers in achieving the credit target for the agriculture sector in Bihar.

Table 10.22 : Agriculture Credit Flow in Bihar (2012-13 to 2018-19)

(Rs. Crore)

Year	Commercial Bank		RRBs		CCBs		Total	
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
2012-13	14674	13203 (90.0)	8407	8035 (95.6)	2319	328 (14.2)	25401	21566 (84.9)
2013-14	18709	17786 (95.1)	10777	10676 (99.1)	800	307 (38.4)	30286	28770 (95.0)
2014-15	22191	21260 (95.8)	12809	13058 (101.9)	1000	362 (36.2)	36000	34680 (96.3)
2015-16	26554	24957 (94.0)	14946	15135 (101.3)	1000	1258 (125.8)	42500	41350 (97.3)
2016-17	28317	25004 (88.3)	18682	14247 (76.3)	1000	1825 (182.6)	48000	41076 (85.6)
2017-18	29281	24734 (84.5)	18682	14879 (79.6)	1036	2548 (246.0)	49000	42161 (86.0)
2018-19	35975	21734 (60.4)	22045	17264 (78.3)	1980	2800 (141.4)	60000	41798 (70.7)

Note : Values in parenthesis are in percentage

Source : State Level Bankers' Committee Report

The data on outstanding advances to the agriculture sector and its growth is shown in Table 10.23. The outstanding advances to the agriculture sector in Bihar were Rs. 45,815 crore in 2018-19, which is only marginally higher than in the previous years. The Commercial Banks have the highest share in these advances at Rs. 31,239 crore, followed by the RRBs at Rs. 13,543 crore in 2018-19.

Table 10.23 : Outstanding Agricultural Advances (2012-13 to 2018-19)

Year	Outstanding Agricultural Advances (Rs. crore)				Annual Growth Rate
	Commercial Banks	RRBs	Cooperative & LDBs	Total	
2012-13	15422	4219	2824	22538	23.2
2013-14	19231	5101	1047	25380	12.6
2014-15	23130	6311	1212	30652	20.8
2015-16	25281	8856	1536	35673	16.4
2016-17	27256	10938	3636	41830	17.3
2017-18	30932	12217	2557	45706	9.3
2018-19	31239	13543	1032	45815	0.24

Source : State Level Bankers' Committee Report

10.4 Kisan Credit Card (KCC)

The number of Kisan Credit Cards (KCC) issued by banks in Bihar is shown in Table 10.24. The KCC scheme was introduced in 1998-99. Over the years, KCC has become a popular instrument

for providing credits to the farmers. The scheme is implemented by all Scheduled Commercial Banks, Regional Rural Banks, State Cooperative Banks, Central Cooperative Banks, and Primary Agricultural Cooperative Societies. The beneficiaries under the KCC are issued with a credit card-cum-passbook, incorporating the borrowing limit and validity period. The credit limits are fixed taking into account the production credit needs for a full year, plus ancillary activities relating to crop production. At the discretion of lending banks, sub-limits for credits are also fixed. The crop loan is provided in the form of a revolving cash credit facility, involving any number of withdrawals and repayments within the fixed limit.

During 2018-19, 2.19 lakh KCCs were issued in the state by different financial institutions. Out of this, a majority of 1.55 lakh cards were issued by the commercial banks, followed by 62.3 thousand cards by the RRBs and 2.0 thousand cards by the CCBs. However, over the years, the achievement percentage in issuing 15.00 lakh cards per year until 2017-18, has steadily declined. The target for issuing the new KCC in the state was revised to 10.00 lakh cards for 2018-19, but only 21.9 percent of the target could be achieved in the year.

Table 10.24 : Number of Kisan Credit Cards (new) issued by Banks (2012-13 to 2018-19)

Year	Target	Achievement	Percentage	Target	Achievement	Percentage
	Commercial Banks			RRBs		
2012-13	811207	600343	74.0	467081	246987	52.9
2013-14	909186	675107	74.3	535348	387658	72.4
2014-15	903944	628370	69.5	537590	353841	65.8
2015-16	918912	484543	52.7	527226	269047	51.0
2016-17	873362	409441	46.9	576187	163919	28.4
2017-18	896357	405366	45.2	571902	119355	20.9
2018-19	599660	154825	25.8	367350	62311	17.0
Year	CCB			Total		
2012-13	221712	16492	7.4	1500000	863822	57.6
2013-14	55466	11325	20.4	1500000	1074090	71.6
2014-15	58466	13057	22.3	1500000	995268	66.4
2015-16	53860	10093	18.7	1500000	763683	51.0
2016-17	50451	7087	14.0	1500000	580447	38.7
2017-18	31742	4489	14.1	1500000	529210	35.3
2018-19	32990	2049	6.2	1000000	219185	21.9

Source : State Level Bankers' Committee Report

Table 10.25 shows the Non-Performing Asset (NPA) of banks in Bihar on March 2018 and March 2019. The NPA of all banks in Bihar as on March 2019 was 10.9 percent, which is slightly higher than 10.6 percent as on March 2018. Among the banks in Bihar, the NPA for the RRBs is the highest at 25.2 percent in March 2019; however, it has declined from 27.5 percent in March 2018. The NPA for the cooperative banks has also come down from 9.7 percent in March 2018 to 7.2 percent in March 2019. The NPA of the Commercial Banks, however, has increased in the state to 9.1 percent in March, 2019 from 8.1 percent in the previous year.

Table 10.25 : NPAs of Banks in Bihar (2018 and 2019)

Banks	March-18				March-19			
	Total Advances (Rs. crore)	Total NPA (Rs. crore)	NPA (Percentage)	Written off (Rs. crore)	Total Advances (Rs. crore)	Total NPA (Rs. crore)	NPA (Percentage)	Written off (Rs. crore)
Commercial Bank	108272	8770	8.1	953	112997	10255	9.1	716
Co-Operative Bank	2570	250	9.7	—	3851	279	7.2	—
RRB	16205	4461	27.5	—	17733	4462	25.2	—
Small Finance Bank	—	—	—	—	2666	6	0.2	—
Total	127047	13481	10.6	953	137247	15002	10.9	716

Source : State Level Bankers' Committee Report

The sector-wise NPAs of the banks are shown in Table 10.26. As on March 2019, the highest percentage of NPA was in the agriculture sector at 19.1 percent, which is higher than 17.1 percent in March 2018. The NPA for the MSME sector declined from 13.9 percent on March 2018 to 12.8 on March 2019. Finally, the NPA in the non-priority sector has also come down from 2.1 percent in March, 2018 to 1.7 percent in March, 2019.

Table 10.26 : Sector-wise NPAs of Banks in Bihar (March 2019)

Sector	Total Outstanding (Rs. crore)	Total NPA (Rs. crore)	NPA (Percentage)
Agriculture	47546.36	9071.04	19.1
MSME	33078.47	4249.23	12.8
Other Priority Sector	11897.44	940.62	7.9
Total Priority Sector	92522.27	14260.89	15.4
Non-Priority Sector	44724.16	741.62	1.7
Total	137246.43	15002.51	10.9

Source : State Level Bankers' Committee Report

10.5 Pradhan Mantri Mudra Yojana (PMMY)

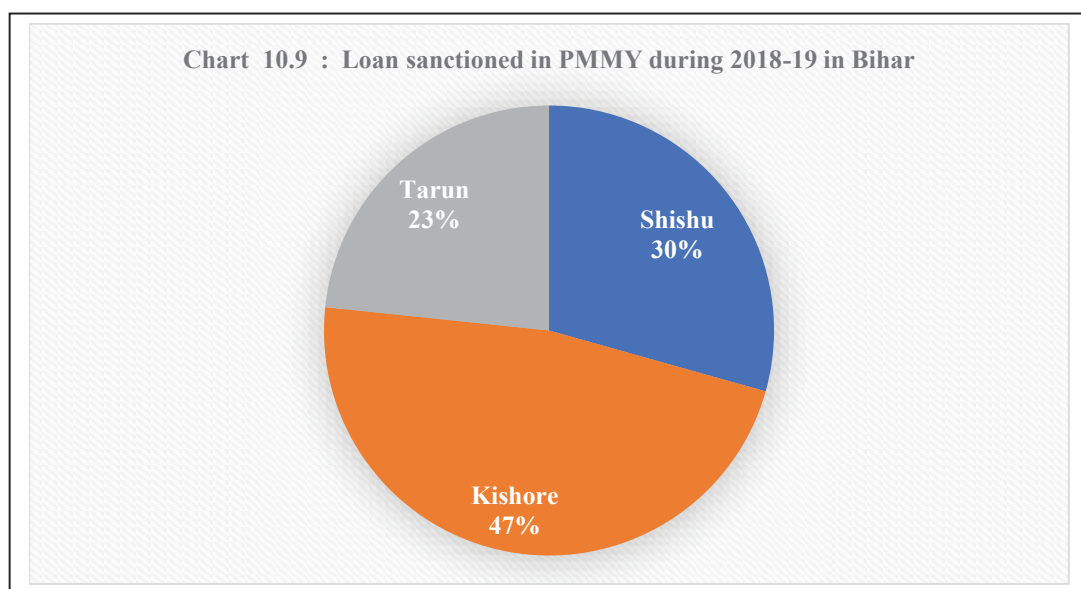
The Pradhan Mantri Mudra Yojana (PMMY) was launched in April 2015 with the objective to ‘create an inclusive, sustainable and value-based entrepreneurial culture’, especially for encouraging and supporting small entrepreneurs. Micro Units Development and Refinance Agency (MUDRA) is a new institution set up by the Central Government to provide funding to the non-corporate, non-farm sector income-generating activities of micro and small enterprises, whose credit needs are below Rs. 10.0 lakh. The loans under this scheme are collateral-free. These loans are given by the Commercial Banks, RRBs, Small Finance Banks, Cooperative Banks, Micro Finance Institutions (MFI) and Non-Banking Financial Institutions (NBFC). Under this scheme, MUDRA has created three products — ‘Shishu’, ‘Kishore’ and ‘Tarun’ as per the stage of growth and funding needs of the beneficiary micro unit. This classification also provides a ‘reference point for the next phase of graduation/growth’. The amounts available under each category are as follows — Shishu (covering loans up to Rs. 50,000), Kishore (covering loans above Rs. 50,000 and up to Rs. 5.00 lakh) and Tarun (covering loans above Rs. 5.00 lakh and up to Rs. 10.00 lakh). The Non-Corporate Small Business Segment (NCSBS) comprising of proprietorship or partnership firms are eligible for assistance under MUDRA. These firms include — small manufacturing units, service sector units, shopkeepers, fruits/vegetable vendors, truck operators, food-service units, repair shops, machine operators, small industries, food processors and others in rural and urban areas.

Table 10.27 shows the performance of the PMMY in Bihar. During 2018-19, loan amounting Rs. 7458.00 crore was sanctioned in Bihar under the scheme, which was more than the target amount of Rs. 4170.45 crore. The distribution of the loans among three categories (Shishu, Tarun and Kishore) under the scheme is shown in Chart 10.9. The share of Kishore loans was 47 percent, followed by Shishu and Tarun Loans with the shares of 30 and 23 percent, respectively, in the total PMMY loans sanctioned during 2018-19. The achievement percentage for this scheme was 217.1 percent (Shishu), 208.3 percent (Kishore) and 118.6 percent (Tarun). Further, it is observed that loans sanctioned under the scheme has decreased from Rs 9598 crore in 2017-18 to Rs 7458 crore in 2018-19, which is a drop of 28.7 percent. The number of loans sanctioned have also come down by 25.8 percent from 11.01 lakhs in 2017-18 to 8.75 lakhs in 2018-19.

Table 10.27 : Performance of PMMY in Bihar (2017-18 and 2018-19)

Category	2017-18				2018-19			
	Number of loans (lakh)	Target Amount (Rs. crore)	Sanctioned Amount (Rs. crore)	Achievement (Percentage)	Number of loans (lakh)	Target Amount (Rs. crore)	Sanctioned Amount (Rs. crore)	Achievement (Percentage)
Shishu	8.69	2165.00	2887.00	133.3	7.14	1008.89	2190.00	217.1
Kishore	2.1	1908.00	5100.00	267.3	1.40	1693.55	3527.00	208.3
Tarun	0.22	1301.00	1611.00	123.8	0.21	1468.01	1741.00	118.6
Total	11.01	5374.00	9598.00	178.0	8.75	4170.45	7458.00	178.8

Source : State Level Bankers' Committee Report



Source : State Level Bankers' Committee Report

APPENDIX

**Table A 10.1 : District-wise Performance Under Annual Credit Plan
(Agriculture and Small and Medium Enterprises) (March, 2019)**

(Amounts in Rs. crore)

Districts	Agriculture			Small & Medium Enterprise		
	Target	Achievement	Achievement Percentage	Target	Achievement	Achievement Percentage
Patna	3726	2621	70.3	3583	6684	186.5
Nalanda	2047	1977	96.6	463	439	94.9
Bhojpur	1845	1104	59.9	476	491	103.2
Buxar	1372	1007	73.4	355	431	121.4
Rohtas	1835	1696	92.4	517	620	120.0
Kaimur	1172	1126	96.1	280	267	95.5
Gaya	2256	1699	75.3	803	914	113.8
Jehanabad	860	508	59.0	253	179	70.8
Arwal	581	360	62.0	118	88	74.4
Nawada	1352	944	69.9	235	289	123.0
Aurangabad	1668	1160	69.6	364	373	102.3
Saran	2026	1513	74.7	626	569	90.9
Siwan	1854	1144	61.7	510	510	99.9
Gopalganj	1767	1046	59.2	355	302	85.1
W. Champaran	1734	1421	81.9	520	480	92.3
E. Champaran	2509	2047	81.6	706	718	101.6
Muzafarpur	2661	2211	83.1	1138	1425	125.2
Sitamarhi	1637	937	57.2	439	403	91.7
Sheohar	472	297	63.0	120	78	64.9
Vaishali	1896	1309	69.1	568	532	93.7
Darbhanga	1846	1215	65.8	576	622	107.9
Madhubani	2876	1296	45.1	554	481	86.9
Samastipur	2824	2187	77.4	721	776	107.5
Begusarai	1765	1508	85.4	708	874	123.5
Munger	906	575	63.5	327	314	96.0
Sheikhpura	591	360	61.0	145	125	86.3
Lakhisarai	728	489	67.2	159	174	109.7
Jamui	1111	833	75.0	227	209	92.0
Khagaria	1077	847	78.6	301	292	96.8
Bhagalpur	1773	1278	72.1	924	953	103.1
Banka	1045	593	56.8	338	247	73.0
Saharsa	747	611	81.9	270	261	96.7
Supaul	1207	732	60.7	310	225	72.7
Madhepura	1144	692	60.5	273	247	90.3
Purnea	1418	1314	92.7	569	831	146.1
Kishanganj	837	847	101.1	282	287	101.9
Araria	1444	1210	83.8	407	474	116.4
Katihar	1394	908	65.1	480	420	87.5
Bihar	60000	43621	72.7	20000	23601	118.0

Source : State Level Bankers' Committee

**Table A 10.2 : District-wise Performance Under Annual Credit Plan
(Other Priority Sector and Total Priority Sector) (March, 2019)**

(Amounts in Rs. crore)

Districts	Other Priority Sector			Total Priority Sector		
	Target	Achievement	Achievement Percentage	Target	Achievement	Achievement Percentage
Patna	3148	2050	65.1	10457	11356	108.6
Nalanda	270	205	75.9	2780	2622	94.3
Bhojpur	317	225	70.8	2638	1820	69.0
Buxar	216	153	70.9	1944	1591	81.9
Rohtas	514	323	62.9	2866	2639	92.1
Kaimur	264	181	68.4	1716	1574	91.7
Gaya	857	528	61.7	3916	3141	80.2
Jehanabad	107	80	75.2	1220	767	62.9
Arwal	58	55	94.9	757	503	66.4
Nawada	141	135	95.9	1728	1368	79.2
Aurangabad	330	223	67.6	2362	1756	74.3
Saran	553	370	67.0	3205	2452	76.5
Siwan	398	251	63.1	2762	1904	69.0
Gopalganj	200	74	36.9	2322	1422	61.2
W. Champaran	738	387	52.4	2992	2288	76.5
E. Champaran	260	186	71.6	3475	2951	84.9
Muzafarpur	364	411	112.8	4163	4047	97.2
Sitamarhi	230	163	70.8	2306	1502	65.1
Sheohar	54	49	90.9	645	424	65.7
Vaishali	201	194	96.6	2665	2035	76.4
Darbhanga	257	192	74.8	2679	2029	75.7
Madhubani	331	234	70.6	3760	2010	53.5
Samastipur	709	366	51.6	4254	3328	78.2
Begusarai	407	218	53.6	2880	2600	90.3
Munger	127	85	67.1	1359	974	71.6
Sheikhpura	14	15	111.4	749	500	66.8
Lakhisarai	53	44	84.4	939	707	75.3
Jamui	138	77	55.9	1477	1119	75.8
Khagaria	117	77	65.4	1496	1215	81.2
Bhagalpur	218	212	97.3	2915	2443	83.8
Banka	77	69	89.2	1459	908	62.2
Saharsa	214	172	80.1	1231	1044	84.8
Supaul	198	131	66.1	1715	1089	63.5
Madhepura	105	79	75.6	1523	1018	66.9
Purnea	240	166	69.1	2227	2311	103.8
Kishanganj	119	61	51.2	1238	1194	96.5
Araria	188	110	58.4	2039	1794	88.0
Katihar	268	120	44.9	2142	1447	67.6
Bihar	13000	8672	66.7	93000	75894	81.6

Source : State Level Bankers' Committee

Table A 10.3 : District-wise Achievement of Kisan Credit Card (NEW and RENEW) (2010-11 to 2018-19)

(Numbers in '000)

Districts	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Patna	50.52	54.95	54.32	72.92	59.09	62.58	66.55	58.46	69.26
Nalanda	42.07	46.48	63.1	52.08	54.17	72.24	56.12	68.75	56.65
Bhojpur	59.02	84.54	86.53	96.03	90.5	83.7	50.31	99.98	57.83
Buxar	32.04	40.53	79.49	64.99	51.36	44.43	35.63	49.55	53.15
Rohtas	57.66	76.55	95.86	78.68	72.13	93.4	113.52	102.74	60.00
Kaimur	29.36	44.17	63.62	57.32	63.94	68.04	37.91	58.98	34.13
Gaya	41.01	60.65	85.44	95.49	86.97	104.28	93.17	90.73	76.37
Jehanabad	25.15	26.43	18.91	16.73	14.2	22.68	17.69	35.49	18.93
Arwal	8.36	12.75	13.46	11.1	13.47	18.68	13.99	21.65	16.00
Nawada	28.98	23.73	36.43	44.29	42.46	76.64	58.62	36.12	50.70
Aurangabad	42.35	54.79	67.64	31.7	54.1	73.83	75.75	55.18	55.46
Saran	34.84	39.06	66.26	72.48	61.32	91.86	82.06	76.91	55.03
Siwan	34.17	36.96	72.17	55.79	71.07	97.31	83.47	76.93	62.27
Gopalganj	53.93	60.45	82.85	97.37	98.8	88.55	109.34	88.95	41.47
W. Champaran	75.74	97.81	86.74	104.25	98.93	136.4	129.69	100.4	88.12
E. Champaran	82.86	104.24	129.86	147.01	156.8	160.34	153.66	142.86	126.18
Muzaffarpur	58.14	71.13	91.76	96.01	144.85	142.78	139.99	91	59.97
Sitamarhi	30.37	43.47	62.52	66.49	47.52	55.15	42.9	62.68	30.77
Sheohar	12.12	7.68	11.31	27.41	9.87	49.79	17.19	15.11	9.38
Vaishali	45.61	66.71	82.39	88.73	80.25	85.17	77.88	95.26	71.41
Darbhanga	26.36	41.68	56.13	52.02	39.35	41.38	48.46	47.24	37.05
Madhubani	55.26	72.37	101.07	95.6	97.56	129.11	95.02	136.74	60.14
Samastipur	80.4	95.79	94.51	155.58	154.74	173.89	170.53	206.55	120.34
Begusarai	72.81	89.8	111.45	152.53	134.32	134.01	119.82	122	91.51
Munger	16.7	28.05	19.33	36.37	36.22	44.2	46.09	57.42	27.88
Shiekhpora	5.22	12.74	13.62	12.6	21.87	13.45	26.97	37.24	19.99
Lakhisarai	15.85	18.07	16.62	35.84	39.83	37.07	38.71	44.76	25.89
Jamui	22.59	28.02	30.84	50.86	64.32	64.64	68.24	75.42	50.07
Khagaria	39.92	57.27	45.85	69.17	78.56	76.26	83.32	71.97	57.21
Bhagalpur	37.94	48.75	45.36	66.86	65.7	72.44	61.73	70.51	51.58
Banka	22.83	36.2	34.78	36.69	36.02	47.77	34.62	45.3	28.08
Saharsa	18.9	25.22	32.86	41.01	47.16	45.35	33.45	30.38	29.12
Supaul	16.79	27.26	40.51	45.48	46.71	43.3	42.94	44.73	40.18
Madhepura	14.71	24.8	29.93	36.54	25.39	20.35	28.71	22.02	35.67
Purnea	30.38	55.21	64.57	64.26	61.97	68.56	45.65	61.79	58.76
Kishanganj	20.79	36.76	44.19	51.11	46.03	54.16	40.5	57.6	42.23
Araria	29.47	47.76	54.05	82.37	53.92	60.22	42.71	54.5	48.84
Katihar	31.62	48.62	45.51	53.03	49.92	60.84	41.77	52.78	38.04
Bihar	1402.83	1847.44	2231.79	2514.76	2471.35	2814.83	2524.66	2666.65	1955.62

Source : State Level Bankers' Committee

CHAPTER - XI

HUMAN DEVELOPMENT

To keep the body in good health is a duty... otherwise we shall not be able to keep our mind strong and clear.

— Gautam Buddha

Abstract

The economic development in Bihar has been characterised predominantly by development of social indicators like health, education, social welfare and social security. In the last eight years, the level of Per Capita Development Expenditure in Bihar has been growing at the rate of 14.2 percent compared to the national average of 13.3 percent. Further, the expenditure on education and health in the state registered an annual growth rate of 13.8 percent and 20.8 percent respectively. The health sector in the state received mixed response in its three crucial development indicators like outcome (IMR), process (institutional delivery) and input (infrastructure). While IMR and institutional delivery improved, Government is keen to promote health infrastructure and expenditure with strong institutional mechanisms like NHM. The literacy rate illustrates an upward trend and the gender gap in literacy shows a downward trend which is a positive sign. The dropout rate at primary education recorded a decrease of 15.5 percentage points and at the upper primary level, this decrease was 6.9 percentage points. Access to safe drinking water is an area of concern. The welfare of SC, ST, minorities and women communities was accorded high priority in state's development programme. The social security measures of the State Government not only uplifted the welfare of disadvantaged communities, it also installed confidence among them. There was a steady increase in expenditure on social security in Bihar.

Human Development is a broad concept and it is about creating an environment in which people can develop their full potential and lead productive lives in accordance with their needs and interests. It is sometimes believed that human development is associated with modernisation, leisure, comfort and affluence. But, this is a partial and one-sided view of human development. In a broader perspective, human development encompasses many more components. To assess different dimensions of human development in a rapidly evolving social and economic context, the role of public policy assumes paramount importance. The concept of human development

throws light on total development of human beings by considering improvement in all these sectors — economic, social, cultural, educational, health and civic conditions. Mere consideration of economic development may lead to poor human development of a country. The present chapter gives a detailed overview of developments in social sector in Bihar through the dimensions of — Health, Drinking Water and Sanitation, Education, Social Welfare, Women Empowerment, and Social Security for Old and Disabled.

Table 11.1 : Trend of Education, Health and Social Services Expenditure (2011-12 to 2018-19)

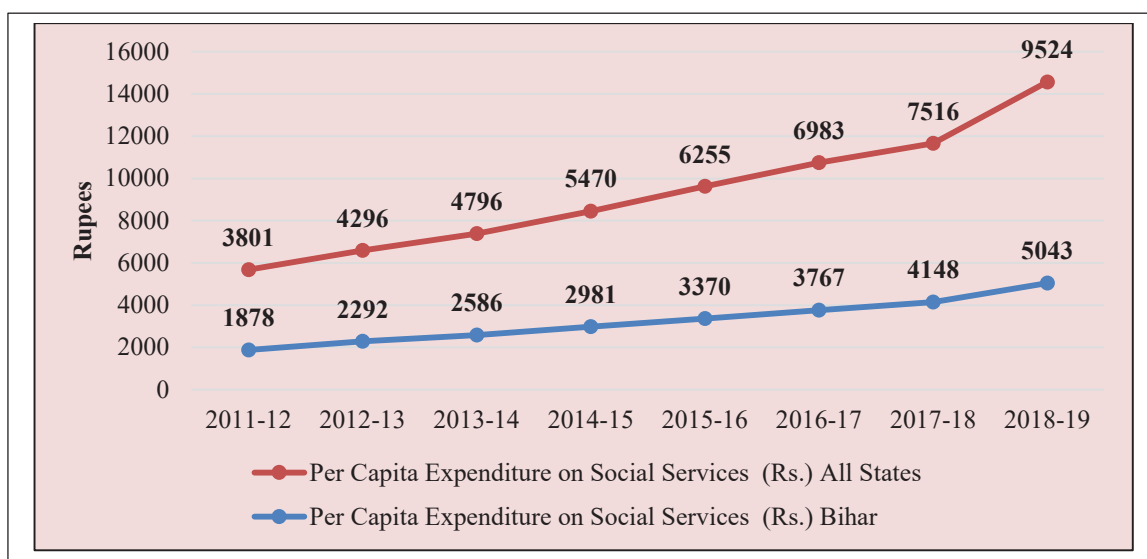
Year	Total Expenditure on Social Services (Rs. crore)		Expenditure on Education (Rs. crore)		Expenditure on Health (Rs. crore)	
	All States	Bihar	All States	Bihar	All States	Bihar
2011-12	459980	19536	2206481	10214	566091	2125
2012-13	528655	24438	2511692	14445	663010	2398
2013-14	600231	28253	2808649	15047	744040	2574
2014-15	696207	33386	3241872	16531	965343	3604
2015-16	809664	38684	3600846	19155	1100772	4571
2016-17	919225	44329	3986071	20226	1251891	5493
2017-18	1006168	50028	4379330	24833	1463826	6182
2018-19	1297167	62346	5317587	28080	1817136	7318
CAGR	15.2	17.0	12.8	13.8	17.9	20.8
Year	Total Expenditure (Rs. crore)		Percentage share of Social Services in Total Expenditure		Per Capita Expenditure on Social Services (Rs.)	
	All States	Bihar	All States	Bihar	All States	Bihar
2011-12	1245816	60182	36.9	32.5	3801	1878
2012-13	1424883	69207	37.1	35.3	4296	2292
2013-14	1600303	80405	37.5	35.1	4796	2586
2014-15	1909198	94698	36.5	35.3	5470	2981
2015-16	2171650	112328	37.3	34.4	6255	3370
2016-17	2479080	126302	37.1	35.1	6983	3767
2017-18	3027178	136427	33.2	36.7	7516	4148
2018-19	3785236	153185	34.3	42.7	9524	5043
CAGR	16.7	14.6			13.3	14.2

Note : (1) The figures for All States include Revenue and Capital Expenditure.

(2) In 2018-19, for all States, RE figures have been used.

Source : State Finances, A Study of Budgets, RBI & Budget Documents, GoB

Chart 11.1 : Trend of Per Capita Expenditure on Social Services



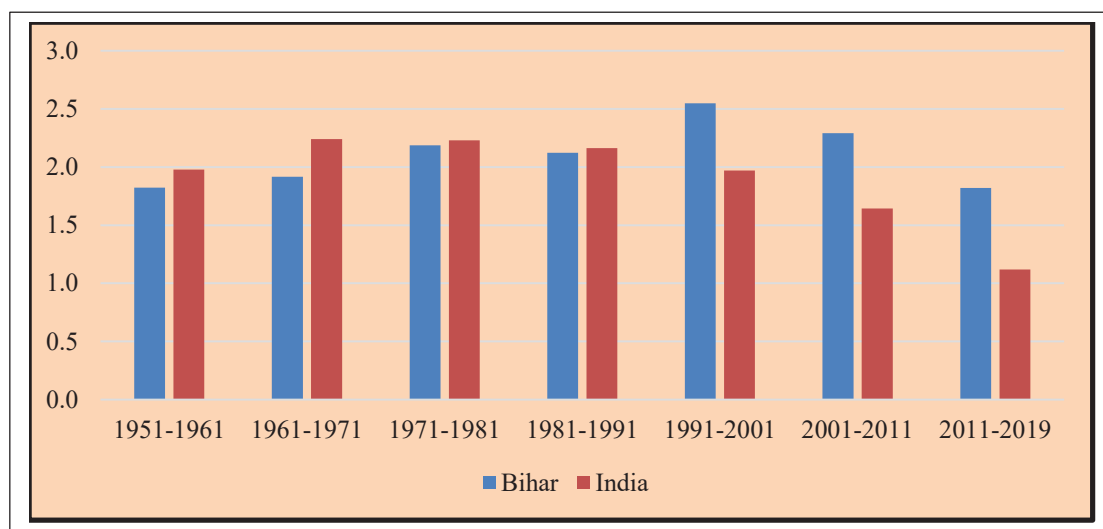
During the last eight years (2011-12 to 2018-19), the economy of the state has experienced a steady growth rate of 11.8 percent at current prices. In consequence, the progress in human development has also been substantial in the state, particularly in the fields of education and health, the two most important components of human development. During the last eight years, the level of Per Capita Development Expenditure (PCDE) in Bihar has been growing at 14.2 percent, compared to the national average of 13.3 percent. It is also praiseworthy that the expenditure on education in the state increased at an annual rate of 13.8 percent, which is again higher than that of all-India average of 12.8 percent. In absolute terms, the expenditures on education in Bihar were — Rs. 10,124 crore in 2011-12 and Rs. 28,080 crore in 2018-19. Likewise, the expenditure on health also increased from Rs. 2,125 crore in 2011-12 to Rs. 7,318 crore in 2018-19, registering an annual growth rate of 20.8 percent. This was 3.0 percentage points higher than that of all-India average (Table 11.1).

11.1 Demography Scenario

Bihar, with a population of 104.1 million in 2011, is the third most populous state of India, which has a total population of 1210.6 million. The share of Bihar is 8.6 percent in country's total population. It is estimated that in 2019, the state's population would be 124.8 million. The population growth rate in India has been slowing down in the recent decades from an annual growth rate of 2.2 percent during 1981-91 to an estimated rate of 1.1 percent in 2011-19. Similarly, the growth rate of population in Bihar has also been reducing from an annual growth rate of 2.5 percent during 1991-2001 to an estimated 1.8 percent in 2011-19 (Chart 11.2). The vital factor

behind this decline in population growth rate since 1980s is the decline in Total Fertility Rate (TFR) in both India and Bihar. It is important to note that this decline has been steady throughout. In Bihar, TFR declined from 5.7 children per woman in 1981 to 3.2 in 2017, registering a decline of 2.5 children per woman. In India, this decline was from 4.5 children per woman in 1981 to 2.2 in 2017.

Chart 11.2 : Annual Growth Rate of Population in India and Bihar (Percent)



Note : The estimated figures for 2011-19 are based on annual growth rate of population given in Economic Survey of India, 2018-19.

According to census 2011, Bihar has a population density of 1106 persons per sq. km, which is thrice the density in India (382 persons per sq. km.). As regards sex ratio, it is lower in Bihar (918), compared to all India (943); however, the child sex ratio in Bihar (935) is higher than the national average (919). The urbanisation is extremely low in Bihar (11.3 percent), compared to India (31.2 percent). More than 90 percent of the population in 26 out of 38 districts of Bihar live in rural areas, making the state the least urbanised among all the major states in India. It may also be noted that the decadal increase in urbanisation in Bihar has been only 0.8 percent, against a much higher increase (3.4 percent) in India. The decadal rate of growth of population during the period 2001 and 2011 was 25.1 percent in Bihar, against 17.6 percent for all India (Table 11.2).

Between 2001 and 2011, the number of towns in Bihar has increased from 130 to 199, showing an increase of 53.1 percent (bottom half of Table 11.2). For India as a whole, the increase in the number of towns has been nearly the same at 53.7 percent (from 5161 to 7935). It is disheartening to note that, during 2001-2011, only 6025 villages out of 45,098 villages in Bihar were turned into urban areas.

Table 11.2 : Demographic Profile and Administrative Structure of Bihar and India (2001 and 2011)

	Bihar		India	
	2001	2011	2001	2011
Demographic Indicator				
Population (million)				
Total	82.9	104.1	1028.7	1210.6
Rural	74.3	92.3	742.5	833.7
Urban	8.7	11.8	286.1	377.1
Sex Ratio (females per '000 males)	919	918	933	943
Child Sex Ratio	942	935	927	919
Density (persons per sq. km.)	880	1106	325	382
Urbanisation (Percentage)	10.5	11.3	27.8	31.2
Decadal Growth (Percentage)	28.6	25.1	21.5	17.6
Administrative Structure				
No. of Districts	37	38	593	640
No. of CD blocks	533	534	5463	5924
No. of Towns (statutory/census)	130	199	5161	7935
No. of Villages	45098	39073	638596	597369

Sources : Census 2001 and 2011

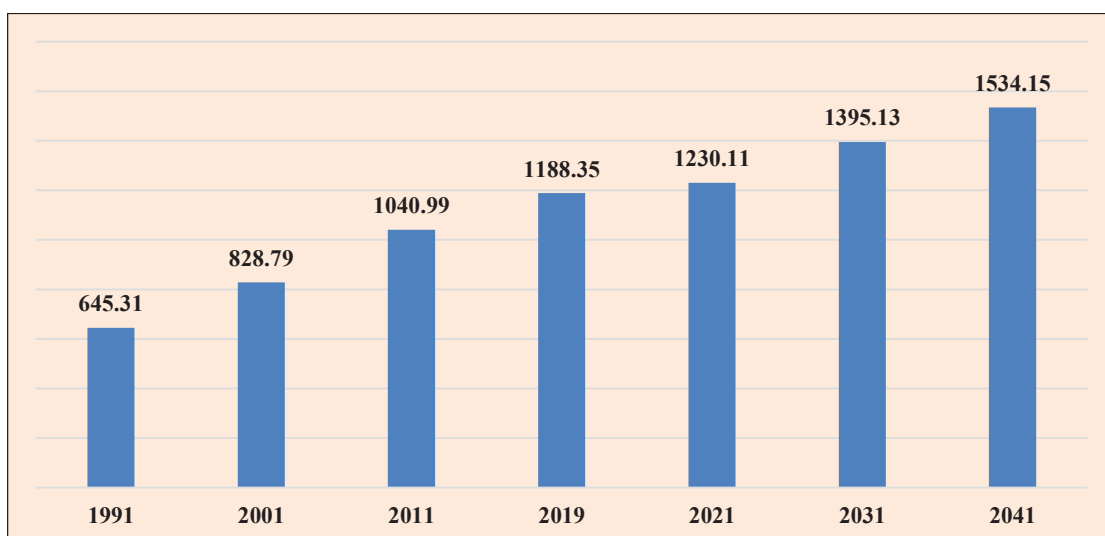
The inter-district variations with respect to demographic features are presented in Table A11.1 (Statistical Appendix), which presents district-wise data on population, overall sex-ratio, child sex-ratio, density of population, decadal growth rate and urbanisation. As regards density of population, 20 out of 38 districts in Bihar have population densities more than 1100 persons per sq. km. Patna is the second most densely populated district with 1803 persons per sq. km. There exists considerable variation with respect to the density of population, the highest being Sheohar (1882 persons per sq. km) and the lowest Kaimur (488 persons per sq.km). As mentioned above, more than 90 percent of the population in 26 districts of Bihar live in rural areas, making the state the least urbanized. The level of urbanisation was the lowest in Samastipur and Banka (3.5 percent each) and the highest in Patna (43.1 percent). The sex ratio in the districts varies from 1021 in Gopalganj to less than 900 in 8 districts. It may be seen that the more urbanized districts like Patna and Munger have relatively lower sex ratio. The child sex ratio in Bihar (935) is higher than the national average at 919 and is more uniform among the districts, varying between 904 to 971. In terms of decadal growth rate of population between 2001 and 2011, it varied from 18.9 percent (Arwal) to 31.1 percent (Madhepura). Lastly, it might be noted that, in terms of population, Patna

district is at the top (58.4 lakhs), accounting for 5.6 percent of the state’s total population; on the other end, Sheikhpura at the bottom (6.4 lakhs) accounts for only 0.6 percent of the state’s total population. As mentioned above, in the recent years, due to several steps taken by the State Government towards decreasing the fertility rate in Bihar, one would hopefully see their impact in the coming 2021 census.

Population Projection for Districts

Bihar is a state with large population and what is happening to the population of this state has a significant bearing on the population of the country. Thus, population projection is significant for the state, as well as the country. For preparing district-wise policies, it is again pertinent to know their population. But no official projections are available for the district population. Keeping these in view, the present survey has tried to provide estimates of future population at the district level in Bihar, for the period 2011-2041. These projections are based on annual population growth rates of Bihar, as estimated in the Economic Survey of India, 2018-19. Bihar’s population is projected to grow from 1041 lakh in 2011 to 1230 lakh in 2021 (1.82 percent increase) and further to 1395 lakh in 2031(1.34 percent increase) and again to 1534 lakh in 2041 (increase of 1.00 percent). These projections show that the population of Bihar is expected to increase by 47 percent in thirty years (Chart 11.3). While some of the developed states are expecting population decline, the increase in Bihar is a matter of concern. The estimated district-wise population in 2021, 2031 and 2041 are presented in Table A11.2 (Statistical Appendix). From this table, it clearly emerges that the growth of population will be faster in districts of north Bihar, compared to those in south Bihar.

Chart 11.3 : Population of Bihar (1991-2041) (in Lakh)



Note : Projections have been done on the basis of data presented in Economic Survey of India (2018-19)

Total Fertility Rate

The Total Fertility Rate (TFR) refers to the total number of children born to a woman of child-bearing age in her lifetime. According to the projected values for 2021-41, the TFR at the state may decline rapidly and, by 2041, it may be 1.8 (Table 11.3). It should be noted here that this level of TFR is below the level of replacement TFR (2.1 children). A close look at the trends of Total Fertility Rate (TFR) in Bihar from 2012 onwards suggests that it has been gradually declining.

Table 11.3 : Projected Total Fertility Rate of Bihar (2012-2041)

Year	2012	2019	2021	2031	2041
Bihar	3.50	2.79	2.50	2.00	1.80

Source : Sample Registration System (SRS), Office of the Registrar General, India

From the district-wise data in Table A 11.3 (Statistical Appendix), it is observed that TFR has fallen significantly in recent decades in many districts of Bihar. In 2012, fertility was very high in districts like East Champaran and Sheohar (4.60), Kishanganj (4.40), Saharsa and Araria (4.30) and Khagaria (4.20). In rest of the districts, fertility remained between 2.60 and 4.00. With 2.60 children per woman, Patna was the district with the lowest fertility, followed by Lakhisarai (3.00), Gaya (3.00) and Bhojpur (3.00). However, by 2041, there will be significant decline in the total fertility rates in the high fertility districts. The fertility rates of East Champaran and Sheohar are expected to come down to 2.37, Kishanganj 2.26, Saharsa and Araria 2.21, and Khagaria 2.16. In addition, the districts with lower fertility will show further decline in 2041 as Patna will have a total fertility of 1.34, Lakhisarai, Gaya, Bhojpur (1.54), and Jamui, Aurangabad (1.59).

Age Structure

Historically, low level of fertility combined with increased longevity imply that the population is getting older. As may be seen from Table 11.4, the share of younger population in Bihar (0-19 years) has already started declining and is projected to drop from a high of 49.2 percent in 2011 to 30.1 percent by 2041. On the other hand, the share of elderly (60 years and above) is expected to rise in the coming decades, but to a lesser extent. The elderly population is projected to increase from 7.8 percent in 2011 to 11.6 percent in 2041, denoting an increase of only 3.8 percentage points. Simultaneously, the working age group population (20-59 years) in Bihar is expected to reach 58.3 percent by 2041. Thus, the emerging situation may provide an opportunity for accelerated economic growth in Bihar, yielding a 'demographic dividend'. The percentage of the

population in the working age group in Bihar is projected to rise steadily, from 43.0 percent in 2011 to 48.9 percent (2021), 55.8 percent (2031) and finally 58.3 percent (2041) (Table 11.4). The variation in age structure of population could also be noticed in different districts of Bihar (Tables A 11.4 and A 11.5) (Statistical Appendix).

Table 11.4 : Projected Population in Bihar by Age Structure (2011-2041)

Age Structures	Projected years	Population	
		Lakh	Percentage Share
0-19 years	2011	511.9	49.2
	2021	535.0	43.5
	2031	489.0	35.1
	2041	462.0	30.1
20-59 years	2011	447.9	43.0
	2021	601.1	48.9
	2031	779.1	55.8
	2041	894.1	58.3
60 years and above	2011	81.1	7.8
	2021	94.0	7.6
	2031	127.0	9.1
	2041	178.0	11.6

Note : Projections have been done on the basis of data presented in Economic Survey of India (2018-19)

11.2 Health Scenario

Health is an indispensable basis for defining a person's status of wellbeing. The health of populations is a distinct key issue in public policy discourse in every society. Health care covers not merely curative medical care, but all aspects of preventive care, too. Nor can it be limited to care rendered by or financed out of public expenditure within the government sector alone; it must also include care provided by the private sector. At its essential core, health care is widely recognized to be a public good. Its demand and supply cannot, therefore, be left to be decided by the market. For proper health care, four criteria are important — (1) universal access, (2) fair distribution of financial costs, (3) providing training for competence and accountability, and (4) special attention to vulnerable groups such as children, women, disabled and the aged. Moving along these lines, in recent years, the State Government has strengthened both the infrastructure and manpower for the health services in Bihar at all levels — primary, secondary and tertiary. Better infrastructure, easy availability of drugs, and expansion of human resources for health

services have all led to an improvement in public health services. This may be attributed to increased expenditure on health, as well as constant monitoring of the health services.

The challenges that the health sector faces are substantial — reduce mortality rates, improve physical infrastructure, necessity to provide health insurance, ensuring availability of trained medical personnel and many others. There has been a rise in both communicable diseases and non-communicable diseases, including chronic diseases in Bihar. While ailments such as poliomyelitis, leprosy, and neonatal tetanus will soon be eliminated, some infectious diseases have returned in force or have developed a stubborn resistance to existing drugs. In addition, the growing elderly population will place an enormous burden on Bihar's healthcare systems and services. The healthcare services in the state is mainly based on primary health care, which envisages attainment of healthy status for all. Being inclusive in nature, it also aims to provide preventive, curative and rehabilitative services. In this section, all these aspects of healthcare will be discussed.

Selected Health Indicators

Due to some pragmatic steps of the State Government, substantial progress have been achieved in health outcomes in the recent years. Life Expectancy at Birth (LEB) reflects the average number of years a newly born baby is expected to survive under the current schedule of mortality. It is a proxy measure for several dimensions like adequate nutrition, good health, education and other valued achievements. Table 11.5 shows the values of LEB for India and Bihar for the periods 2006-10 and 2013-17. The life expectancy at birth in Bihar in 2013-17 has been 69.2 and 68.6 years for males and females respectively. The increase in life expectancy has been 3.7 years for males and 2.4 years for females over 2006-10. The life expectancy in 2013-17 has increased by 2.1 years in the rural and 4.5 years in the urban areas as compared to 2006-10. It should also be noted that, in these 7 years, the gap between India and Bihar which was 0.3 year in 2006-10 has reduced to 0.1 year in 2013-17. For India as a whole, LEB in 2013-17 has increased by 3.2 years for males and 2.7 years for females over 2006-10. Similarly, the LEB for rural areas has increased by 3.6 years and for urban areas by 2.1 years over 2006-10. In 2013-17, the LEB for males (69.2 years) was marginally higher than that of female (68.6 years) by about 0.6 year in Bihar. Contrary to this, for India as a whole, the LEB of females (70.4 years) was higher than that of males (67.8 years).

Table 11.5 : Life Expectancy at Birth (2006-10 and 2013-17)

State/India	2006-10			2013-17		
	Male	Female	All	Male	Female	All
Bihar	65.5	66.2	65.8	69.2	68.6	68.9
India	64.6	67.7	66.1	67.8	70.4	69.0
State/India	Rural	Urban	All	Rural	Urban	All
Bihar	65.6	67.9	65.8	67.7	72.4	68.9
India	64.9	69.6	66.1	68.5	71.7	69.0

Source : Sample Registration System (SRS), Office of the Registrar General, India

Seven more indicators of health, for which there exists comparable data are — Crude Birth Rate (CBR), Infant Mortality Rate (IMR), Child Mortality Rate (CMR), Under Five Mortality Rate (U5MR), Neo-Natal Mortality Rate (NMR), Peri-Natal Mortality Rate (PMR) and Total Fertility Rate (TFR). The related data for these indicators, for both Bihar and India, is presented in Table 11.6, covering the period 2013 to 2017. For Crude Birth Rate (CBR), the figures are persistently higher for Bihar; in 2017, it was 26.4 for Bihar, compared to 20.2 for India, indicating a difference of 6.2. The high growth rate of population in Bihar can be said to be an outcome of this constantly high birth rate and a relatively faster declining death rate. The Infant Mortality Rate (IMR) which indicates the death of children before the age of one year per 1000 live births, is another reliable indicator of health and nutritional status of a population. The concerted efforts of the State Government through ensuring round-the-clock delivery services in all PHCs had paid rich dividends in bringing down the IMR considerably in Bihar. In 2017, the IMRs in Bihar were — rural (36), urban (31), and overall (35). The corresponding figures for India were — rural (37), urban (23), and overall (33). Thus, the situation in Bihar was very close to the national average, in spite of its serious economic and social disadvantages. As regards CMR, it again declined in Bihar from 11 in 2013 to 9 in 2017, whereas for all-India this decline was from 11 in 2013 to 9 in 2017. This is admirable. While comparing the TFR, it is noticed that there is a marginal decline in TFR in Bihar from 3.4 children per woman in 2013 to 3.2 children per woman in 2017, a drop of 0.2 child per woman. For all-India, the TFR was much lower than in Bihar throughout and it dropped only marginally between the two years — from 2.3 in 2013 to 2.2 in 2017.

Table 11.6 : Selected Health Indicators for Bihar and India (2013 to 2017)

Year	Indicators	Crude Birth Rate	Infant Mortality Rate	Child Mortality Rate	Under-Five Mortality Rate	Neo-Natal Mortality Rate	Peri-Natal Mortality Rate	Total Fertility Rate
India								
2017	All	20.2	33.0	9.0	37.0	23.0	23.0	2.2
	Rural	21.8	37.0	10.0	42.0	27.0	26.0	2.4
	Urban	16.8	23.0	6.0	25.0	14.0	15.0	1.7
2016	All	20.4	34.0	9.4	39.0	24.0	23.0	2.3
	Rural	22.1	38.0	10.7	43.0	27.0	26.0	2.5
	Urban	17.0	23.0	6.0	25.0	14.0	14.0	1.8
2015	All	20.8	37.0	10.0	43.0	25.0	23.0	2.3
	Rural	22.4	41.0	12.0	48.0	29.0	26.0	2.5
	Urban	17.3	25.0	7.0	28.0	15.0	15.0	1.8
2014	All	21.0	39.0	11.0	45.0	26.0	24.0	2.3
	Rural	22.7	43.0	12.0	51.0	30.0	27.0	2.5
	Urban	17.4	26.0	6.0	28.0	15.0	15.0	1.8
2013	All	21.4	40.0	11.0	49.0	28.0	26.0	2.3
	Rural	22.9	44.0	12.0	55.0	31.0	28.0	2.5
	Urban	17.3	27.0	6.0	29.0	15.0	16.0	1.8
Bihar								
2017	All	26.4	35.0	9.0	41.0	28.0	24.0	3.2
	Rural	27.2	36.0	9.0	42.0	29.0	25.0	3.3
	Urban	20.9	31.0	8.0	34.0	21.0	16.0	2.4
2016	All	26.8	38.0	9.8	43.0	27.0	24.0	3.3
	Rural	27.7	39.0	10.0	44.0	28.0	25.0	3.4
	Urban	21.1	29.0	8.0	34.0	17.0	13.0	2.5
2015	All	26.3	42.0	12.0	48.0	28.0	24.0	3.2
	Rural	27.1	42.0	12.0	48.0	29.0	24.0	3.3
	Urban	20.6	44.0	11.0	47.0	20.0	20.0	2.5
2014	All	25.9	42.0	12.0	53.0	27.0	22.0	3.2
	Rural	26.9	43.0	13.0	54.0	29.0	24.0	3.3
	Urban	19.9	37.0	9.0	43.0	13.0	9.0	2.4
2013	All	27.6	42.0	11.0	54.0	28.0	23.0	3.4
	Rural	28.3	42.0	12.0	56.0	29.0	25.0	3.5
	Urban	21.5	33.0	8.0	37.0	11.0	7.0	2.5

Source : Sample Registration System (SRS), Office of the Registrar General, India

Health Infrastructure

Bihar has the third largest populations in the country, coupled with widespread poverty. Due to a combined effect of poverty, population load and climatic factors, Bihar's population is seriously susceptible to diseases. To provide adequate health services to such a population, it is extremely necessary to have a strong health infrastructure. The overall health infrastructure of a state can be classified as — skilled workforce, public health organizations, resources, integrated electronic information systems and research. Public health infrastructure is fundamental to the provision of health services at all levels. A three- tier public health infrastructure, based on predetermined population norms, has been developed in the state. The healthcare infrastructure consists of primary, secondary, and tertiary health care. At the primary level of health care, it includes Community Health Centers (CHC), Primary Health Centers (PHC), and Sub-Centers (SC) and Additional PHCs (APHC). The sub-divisional hospitals come under the category of secondary health care and, finally, the tertiary level of health care includes the district hospitals and medical colleges.

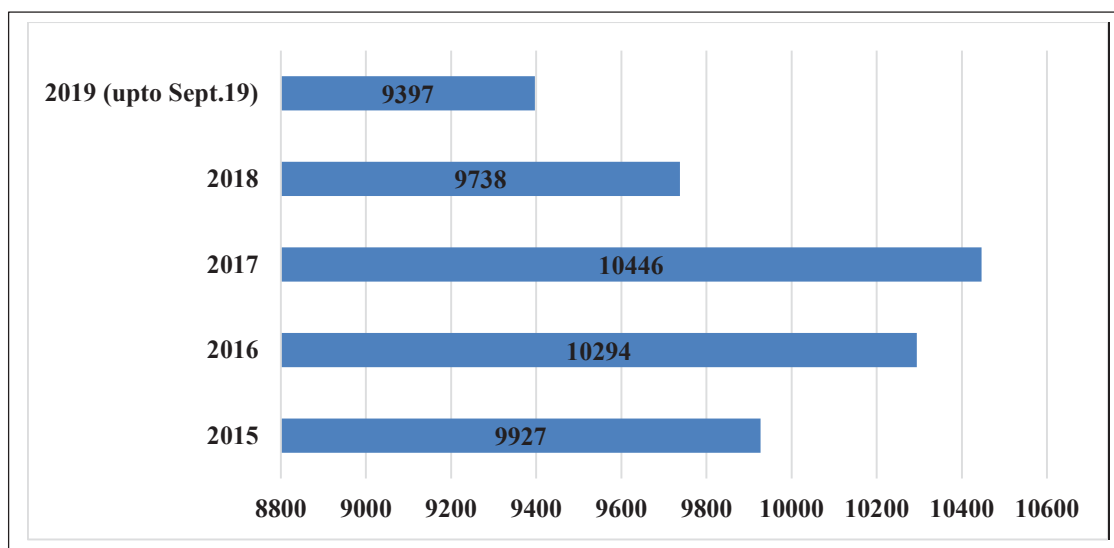
The low income of the majority of population in Bihar leads to their dependence on public health services. In recent years, the State Government has taken a number of steps to improve the functioning of the public health institutions and, consequently, the number of patients visiting government hospitals has increased significantly (Table 11.7). The average number of patients visiting government hospitals per month was 9927 in 2015, which has become 10,446 in 2017. This is an increase of 1.5 percent in the patient footfall, compared to the previous year. There was, however, a drop in this number in 2018 and first nine months of 2019; but the drop was marginal. Such large number of footfalls in hospitals is the result of comprehensive health services, with provision of free medicines and quality care. The State Government has also been organising a large number of health camps to raise awareness about health among the masses.

Table 11.7 : Monthly Average Number of Patients Visiting Government Hospitals (2015 to 2019)

Year	2015	2016	2017	2018	2019 (upto Sept. 19)
No. of patients visiting Government hospitals per month	9927 (5.3)	10294 (3.7)	10446 (1.5)	9738 (-6.8)	9397

Note : Figures in the parenthesis represent annual increase
Source : State Health Society, GoB

Chart 11.4 : Number of Patients Visiting Government Hospitals Per Month



The health infrastructure in Bihar consists of district hospitals, referral hospitals, sub-division hospitals and health centres; within the last category, there are three types — Primary Health Centres (PHCs), Additional PHCs (APHCs) and Sub-Centres. The Primary Health Centre (PHC) is the core of the rural health services infrastructure. It has both outpatient and outreach services. These outreach services are provided by Sub-Centres and multipurpose health workers. In-patient and more specialised services are provided at the Community Health Centres (CHC). Each Sub-Centre is expected to cater to a population of 5 thousand, each PHC to a population of 30 thousand and a CHC serves a population of 1 lakh. The district hospitals and medical college hospitals, along with specialized institutions, provide referral care. Table 11.8 presents the number of health service units under each category in Bihar. During last eight years, there has been an expansion in the health infrastructure and presently there are 37 district hospitals, 70 referral hospitals, 55 sub-divisional hospitals (SDH), 533 PHCs, 9949 Sub-Centres and 1399 APHCs. The last three types add up to 11,881 health centres. Thus, per ten lakh of population, there are about 114 health centres in the state in 2019 (Table 11.8). To meet the challenge of infrastructural deficiency in healthcare facilities, out of 533 PHCs, the target is to upgrade 399 six-bedded PHCs to thirty-bedded Community Health Centres (CHC) and 167 of them are already functional. Out of 70 referral hospitals, 67 have both Outpatient Department (OPD) and Inpatient Department (IPD) facility, whereas the remaining three are having only OPD facility. Correspondingly, 55 SDHs have been sanctioned by the State Government, out of which 46 are fully functional and 9 more are being opened shortly in Teghra and Bakhri (Begusarai), Haveli Kharagpur (Munger), Benipatti (Madhubani), Marhourah (Saran), Belsand (Sitamarhi), Mahnar (Vaishali), Piro (Bhojpur) and Baisi (Purnea).

Table 11.8 : Overall Status of Health Infrastructure (2012 to 2019)

(Figures in Number)

Year	District Hospital	Referral Hospital	Sub Divisional Hospital	Health Centres				Health centres per ten lakh population
				PHC	Sub Centre	APHC	Total	
2012	36	70	55	533	9696	1330	11559	109
2013	36	70	55	533	9696	1330	11559	106
2014	36	70	55	533	9729	1350	11612	104
2015	36	70	55	533	9729	1350	11612	102
2016	36	70	55	533	9729	1350	11612	100
2017	36	70	55	533	9949	1366	11848	99
2018	37	70	55	533	9949	1379	11861	114
2019	37	70	*55	**533	9949	1399	11881	114

Note : ** 399 PHC will be upgraded to 30-bedded CHC, 239 of which has been constructed and 167 are functional * 46 SDH are fully functional and 9 more are being opened

Source : State Health Society, GoB

Since Bihar is home to diverse socio-cultural groups, the health needs of people also vary from region to region. Given the size of state's population and the burden of disease, the challenge of attaining good health for people is a daunting one. From the data on the number of health institutions in different districts, as presented in Table A 11.6 (Statistical Appendix), it is obvious that there is considerable variation across the districts in terms of the availability of health infrastructure. Taking into account, the number of health institutions per lakh of population, the best three districts in terms of availability of health infrastructure are — Jamui (179), Sheikhpura (173) and Sheohar (169). At the other end, three most disadvantaged districts are — Patna (62), Sitamarhi (78) and Darbhanga (83).

In general, the performance of public health facilities is judged by the nature of outpatient and inpatient visits. Such performance also varies considerably across the districts, as indicated by two indicators — average number of outpatients visiting hospitals per day and the in-patient bed occupancy rate. In 2018-19, three districts with the highest average number of outpatients visiting hospitals per day are — Muzaffarpur (515), Khagaria (472) and Darbhanga (459). At the other end, three districts with the lowest average number of outpatients visiting hospitals per day are — Sheohar (147), Buxar (168) and Jamui (180). For Bihar as a whole, there has been a marginal decrease in the average number of outpatient visits from 339 in 2016-17 to 311 in 2018-19. The Bed Occupancy Rate (BOR) and length of stay in hospital are also sensitive indicators to assess

the health care utilization of any hospital. There was a fall in overall Bed Occupancy Rate of Bihar from 64 percent in 2016-17 to 55 percent in 2018-19, and this may indicate that more people are moving towards private health care facilities. In 2018-19, the Bed Occupancy Rate among the districts varied between 111 percent in Khagaria to 23 percent in Sheohar. In the same year, three outstanding districts with the highest Bed Occupancy Rates are — Khagaria (111 percent), Saharsa (90 percent) and Madhepura (88 percent), whereas three worst performing districts are Sheohar (23 percent), Nawada (26 percent) and Araria/Muzaffarpur (30 percent). The Bed Occupancy Rate exceeds 80 percent in 5 districts which is indicative of high demand for public health services. Table A 11.7 (Statistical Appendix) reports data for average number of outpatients visiting hospitals per day and the in-patient bed occupancy rate for four years — 2016-17, 2017-18, 2018-19 and 2019-20.

The non-availability and uneven distribution of human resources can be a serious challenge towards meeting the health goals in a region. As regards the human resources for health services in Bihar, the infrastructure consists of — doctors, nurses, Auxiliary Nurse-Cum-Mid-wife (ANM), and Accredited Social Health Activist (ASHA). The availability of such personnel for the entire state is presented in Table 11.9. The district-wise data is presented in Tables A 11.8 to A 11.11 (Statistical Appendix). As regards doctors, in 2018-19, there were 3821 regular doctors in Bihar, against 6261 sanctioned posts, indicating a high vacancy ratio of 39 percent. In addition, there were also sanctioned posts for 2314 contractual doctors, of which only 533 posts were filled up, representing again a high vacancy ratio of 77 percent. Health care is a labour intensive sector, where human resource plays critical role. However, in Bihar, there are as many as 7 districts (Sheikhpura, Jehanabad, Arwal, Sheohar, Nalanda, Bhagalpur and Patna), in each of which a government doctor has to serve more than 5 lakh people. As regards regular nurses, there were 4704 sanctioned posts, but the number of working nurses were lesser at 1994, indicating a high vacancy ratio of 58 percent. Similarly, in case of contractual nurses, against the sanctioned strength of 1719, only 308 were working, implying a high vacancy ratio of 82 percent. In contrast to the situation of doctors and nurses, the strength of health personnel is much higher for ANMs and ASHAs. In 2018-19, the actual strength of regular ANM was 11,830, against the sanctioned posts of 21,859, indicating a vacancy ratio of 46 percent. Likewise, the working strength of contractual ANMs was 5889, against 12,587 sanctioned posts, indicating a vacancy ratio of 53 percent. In case of ASHA workers, it is found that there are in all 88 thousand of them working in the entire state against a sanctioned strength of 93 thousand, implying a vacancy ratio of only 6 percent. Analyzing healthcare sector within the four pillars of accessibility, availability, affordability and acceptability

can help in identification of gaps and challenges currently faced by the state. Based on the above information, it can be easily realised that the present human resource base of the health system in Bihar needs strengthening. One should also remember that the inadequacy in manpower is more in rural areas, where health services like family planning and immunization are more needed.

Table 11.9 : Number of Health Personnel (2017-18 and 2018-19)

Name of the Post	Regular			Contractual		
	Sanctioned Posts	Working		Sanctioned Posts	Working	
		2017-18	2018-19		2017-18	2018-19
Doctors	6261	3921	3821	2314	83	531
Grade A Nurse	4704	1994	1994	1719	308	308
ANM	21859	11830	11830	12587	5889	5889
ASHA	-	-	-	93687	85708	88664

Source : Health Department and State Health Society, GoB

Institutional Delivery

Maternal health is a core function of all public health services. Janani Suraksha Yojana (JSY) is a safe motherhood intervention under the National Health Mission launched in April, 2005, as a Centrally Sponsored Scheme. The reduction of maternal and infant mortality is one of the key goals of the National Health Mission. At the beginning of the Mission, Janani Suraksha Yojana, a demand promotion and conditional cash transfer scheme, was launched with the objective of reducing maternal and infant mortality. It has been lauded as a scheme that has been successful in bringing about a surge in institutional deliveries since its launch, especially in the Empowered Action Group states like Bihar. JSY promotes institutional delivery, especially among women from low socioeconomic households — Scheduled Castes, Scheduled Tribes and BPL households. The scheme focuses on the poor pregnant woman, specially in states having low institutional delivery rates (Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Assam, Rajasthan, Odisha and Jammu and Kashmir). These states have been named as Low Performing States (LPS), and the remaining states have been named as High Performing States (HPS). The exclusion criteria of age of mother being 19 years or above and up to two children only under the JSY have been removed and all mothers are now entitled to JSY, benefit regardless of any age and any number of children. The scheme enables the States/UTs to hire the services of a private specialist to conduct Caesarean Section or for the management of Obstetric complications, in the public health facilities, where the government specialists are not available. The states are encouraged to accredit private health facilities for increasing the choice of delivery care institutions. The scheme also provides performance-based incentives to ASHAs for promoting

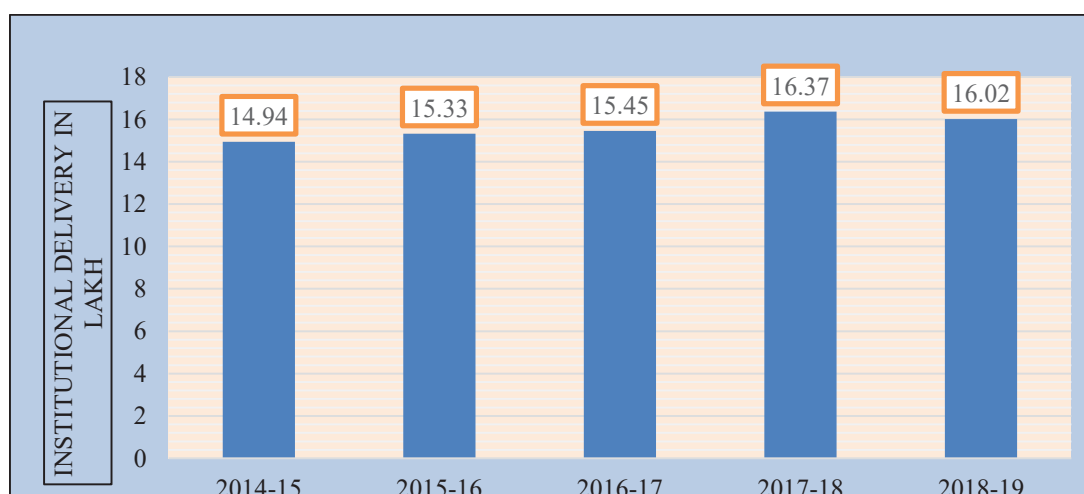
institutional delivery. The women in rural areas in LPS are given a cash assistance of Rs. 1400 for an institutional delivery. In addition, ASHAs are given a performance linked fee of Rs. 600 for each woman they motivate, which includes Rs. 300 for ante-natal care (ANC) component and Rs. 300 for facilitating institutional delivery. Similarly, in urban areas of the LPS, an amount of Rs. 1000 is given to mothers and Rs. 400 is given to ASHA (Rs. 200 for ANC and Rs. 200 for facilitating institutional delivery). ASHAs receive an initial training of three weeks in various aspects of maternal and child care. Under this scheme, ASHAs are required to identify pregnant women, facilitate at least four antenatal check-ups for them, and motivate them for institutional delivery. They are also required to visit the mother and newborn for a postnatal check-up within seven days of delivery and counsel them on early breastfeeding. Further, the BPL women, who prefer to deliver at home, are entitled to a cash assistance of Rs 500 per delivery regardless of the age of woman and the number of children. The State Government has been providing assistance to JSY beneficiaries through the Direct Benefits Transfer (DBT) model since 2013. Due to active participation of ASHAs and quality care at public health facilities, there has been substantial increase in number of institutional deliveries in Bihar. Between 2014-15 and 2018-19, the number of institutional deliveries increased from 14.94 lakh to 16.02 lakh, registering an increase of 7.2 percent. In 2019-20, 7.94 lakh institutional deliveries were recorded till September, 2019 (Table 11.10).

Table 11.10 : Institutional Delivery under JSY (2014-15 to 2019-20)

Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20, September, 2019
Institutional Delivery (lakh)	14.94	15.33	15.45	16.37	16.02	7.94

Source : State Health Society, GoB

Chart 11.5 : Institutional Delivery under JSY



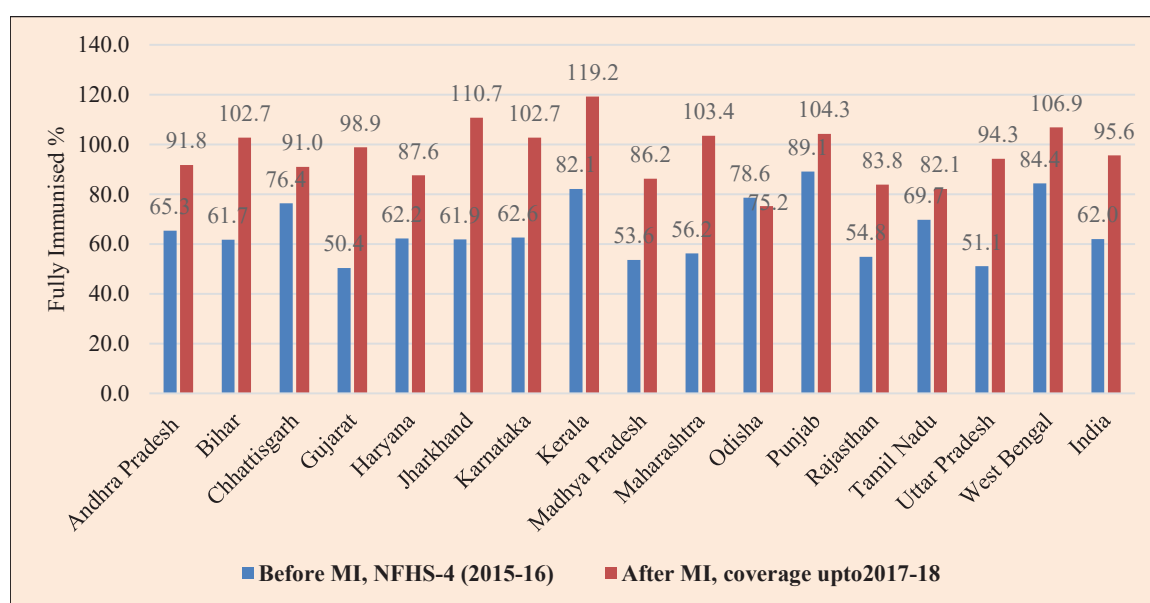
The data for number of institutional deliveries in different districts of Bihar is presented in Table A 11.12 (Statistical Appendix). It is interesting to observe from the table that many of the districts where the extent of institutional deliveries is relatively higher are in North Bihar, like Samastipur (88 thousand), Purnea (74 thousand) and West Champaran (73 thousand). Opposite to this, it may be noted that except Sheohar (11 thousand), other two worst performing districts lie in south Bihar — Arwal (10 thousand) and Sheikhpura (13 thousand).

Immunisation

Immunization is considered as one of the key interventions for protection of children against life threatening conditions that are preventable. Both at the state and national levels, the benefits of immunization go beyond the improvements in health and life expectancy to an impact on social and economic indicators. An effective, evenly targeted immunization programme and its impact towards reducing the burden of Vaccine Preventable Diseases will greatly contribute in achieving the Sustainable Development Goal (SDG) of reducing IMR to 25 per 1000 live births by 2030. Immunization has been one of India's greatest public health success stories. The Immunization Programme in India had started in 1978 as Expanded Programme on Immunization (EPI) with DPT, BCG, OPV, and typhoid paratyphoid fever vaccines. In 1985, the programme was modified as 'Universal Immunization Programme' (UIP), to be implemented in phased manner to cover all districts of the country by 1989-90. Despite being operational for many years, UIP was able to immunize only 65 percent children in the first year of their life. To address this slow progress in immunization coverage and to achieve 90 percent immunization coverage by 2020, the Ministry of Health and Family Welfare, Government of India, launched a massive routine immunization (RI) intensification campaign called Mission Indradhanush (MI) in December 2014. As of now, out of 640 districts as per 2011 census, 528 districts have been covered under various phases of MI. The programme gives special attention to unserved or low coverage pockets in sub-centres and urban slums with migratory population. The focus is also on the urban settlements and cities identified under National Urban Health Mission (NUHM). The MI provides for life-saving vaccines against Tuberculosis, Diphtheria, Pertussis, Tetanus, Polio, Hepatitis B, Pneumonia and Meningitis due to Haemophilus Influenzae type B (Hib), Measles, Rubella, Japanese Encephalitis (JE) and Rotavirus diarrhoea. The launching date for the Intensified Mission Indradhanush (IMI) 2.0 across India is December 2, 2019. The mission aims to immunize children under 2 years of age and pregnant women against eight vaccine-preventable diseases. The IMI 2.0 will focus on 272 districts of 27 states and Bihar is one of those states. The immunisation drive 2.0 will also provide vaccines for two other diseases — Haemophilus influenza and Japanese encephalitis in certain selected areas. The IMI 2.0 will be carried out between December 2019 and March 2020.

Chart 11.6 shows improvement in full immunisation coverage in major states of India, before and after MI. The coverage of children in states after MI ranged from 75 percent in Odisha to 119 percent in Kerala. For Bihar, there was an increase of 41 percentage points in immunisation coverage, from 62 percent in 2015-16 to 103 percent in 2017-18. One should also note here that the coverage was more than 100 percent in seven States — Kerala (119.2 percent), Jharkhand (110.7 percent), West Bengal (106.9 percent), Punjab (104.3 percent), Maharashtra (103.4 percent), Karnataka and Bihar (102.7 percent). For the country as a whole, the increase was of 37 percentage points, from 62 percent in 2015-16 to 97 percent in 2017-18. Except Odisha, where there is marginal decline of 3.4 percentage points between 2015-16 and 2017-18, all other states have shown considerable increase in immunisation coverage. It is hoped that, in the longer term, the lessons learnt from MI will be incorporated into routine programming for reducing vaccination inequities.

Chart 11.6 : Percentage of children aged 12-23 months fully immunised before and after MI



Along with other states in India, Bihar has also made substantial progress towards universal immunisation in recent years. The relevant data in this regard is presented in Table 11.11. This data refers to five components of immunisation – TT (Anti-tetanus), BCG, OPV, PENTA and measles. Looking at the most recent figures (2018-19), it is noticed that the coverage is more than 80 percent in — BCG, OPV 1, OPV 2 and PENTA-1. For the rest of the vaccines, the achievements are always above 70 percent, except for OPV (zero dose) (56.7 percent). Looking at the data for 2019-20 (upto September, 2019 only), one might expect that in coming years all the vaccines will have an achievement rate above 90 percent.

Table 11.11 : Antigen-wise Immunisation Coverage in Bihar (2017-18 to 2019-20)

Antigen name	2017-18		2018-19		2019-20 (Upto September, 2019)	
	Target ('000)	Achievement ('000)	Target ('000)	Achievement ('000)	Target ('000) for 6 months	Achievement ('000)
TT 2 + Booster (PW)	3340	2665 (79.8)	3424	2700 (78.8)	1754	1480 (84.3)
BCG	3158	2722 (86.2)	3239	2689 (83.0)	1660	1302 (78.4)
OPV 0	3158	1861 (58.9)	3239	1836 (56.7)	1660	906 (54.6)
OPV 1	3158	2719 (86.1)	3239	2682 (82.8)	1660	1323 (79.6)
OPV 2	3158	2666 (84.4)	3239	2600 (80.2)	1660	1394 (83.9)
OPV 3	3158	2559 (81.0)	3239	2478 (76.5)	1660	1392 (83.8)
PENTA-1	3158	2726 (86.3)	3239	2701 (83.3)	1660	1327 (79.9)
PENTA-2	3158	2672 (84.6)	3239	2621 (80.9)	1660	1400 (84.3)
PENTA-3	3158	2565 (81.2)	3239	2495 (77.0)	1660	1398 (84.2)
Measles	3158	2627 (83.2)	3239	2311 (71.3)	1660	1420 (85.5)

Note : 1. DPT has been replaced by Pentavalent in 2015-16
2. Figures in parenthesis indicate achievement in percentage
Source : State Health Society, GoB

Prevalence of Main Diseases

An important dimension of health status of a population is the main diseases that affect it. At the national level, the disease burden is changing. While the communicable diseases remain a significant threat, noncommunicable diseases (NCDs) are now becoming country's pre-eminent threat to public health and wellbeing. The reasons for this are manifold which include a genetic predisposition towards conditions such as diabetes and the increasing adoption of unhealthy diets and sedentary lifestyles. These practices place Indians at elevated risk of conditions such as hypertension and heart disease. Table 11.12 presents the data on the prevalence of various diseases in Bihar during the last four years. It is observed from the table that, in 2018-19, the number of cases was the highest in respect of Acute Respiratory Infections (10.0 lakh), followed by Fever of Unknown Origin (8.2 lakh), Acute Diarrhoea (3.3 lakh), Dog Bite (2.8 lakh), Dysentery (1.7 lakh) and Enteric Fever (1.4 lakh). It also emerges from the table that the cases of periodic water-borne

diseases like diarrhoea or dysentery are also very frequent in the state, underlining the inadequate availability of safe drinking water. Along with these diseases, rabies caused by dog bite is another reported disease accounting for 2.8 lakh patients. It is also obvious from the table that, due to significant improvements in healthcare services, the total number of patients has declined from 38.8 lakh in 2015-16 to 28.8 lakh in 2018-19, registering a decline of 26 percent. The district-wise figures for the same are provided in Table A 11.13 (Statistical Appendix).

Table 11.12 : Prevalence of Main Diseases (2015-16 to 2018-19)

(No. of patients in lakh)

Diseases	2015-16	2016-17	2017-18	2018-19
Acute Diarrhoea	5.1 (13.0)	2.7 (13.2)	4.2 (11.8)	3.3 (11.4)
Bacillary Dysentery	2.8 (7.2)	1.4 (6.9)	2.1 (5.9)	1.7 (5.8)
Viral Hepatitis	0.3 (0.7)	0.2 (1.0)	0.3 (0.9)	0.3 (1.0)
Enteric Fever	2.6 (6.7)	1.3 (6.9)	2.1 (5.9)	1.4 (4.8)
Malaria	0.3 (0.8)	0.2 (1.0)	0.3 (0.7)	0.2 (0.6)
Fever of Unknown Origin	10.3 (26.6)	5.1 (25.0)	9.0 (25.2)	8.2 (28.5)
Acute Respiratory Illnesses	13.5 (34.7)	6.9 (33.8)	12.8 (36.2)	10.0 (34.9)
Pneumonia	0.4 (1.1)	0.2 (1.0)	0.4 (1.0)	0.2 (0.6)
Dog Bite	2.7 (7.0)	1.9 (9.3)	3.7 (10.4)	2.8 (9.8)
Any other State Specific disease	0.3 (0.8)	0.2 (1.0)	0.2 (0.7)	0.2 (0.7)
Unusual Syndromes not captured above	0.6 (1.5)	0.2 (1.0)	0.5 (1.3)	0.6 (2.0)
Total	38.8 (100.0)	20.4 (100.0)	35.5 (100.0)	28.8 (100.0)

Note : Figures in the parenthesis denote percent share to total
Source : State Health Society, GoB

National Health Mission

The National Health Mission (NHM), launched in 2005, incorporates two Sub-Missions — the National Rural Health Mission (NRHM) and the National Urban Health Mission (NUHM). The main programmatic components include Health System Strengthening, Reproductive-Maternal-Neonatal-Child and Adolescent Health (RMNCH+A), and Communicable and Non-Communicable Diseases. The NHM envisions accomplishment of universal access to equitable, affordable and quality health care services that are accountable and responsive to public needs. The NHM fund sharing pattern is 60:40 between the Central and the State Government. The National Health Mission (NHM) is a major instrument of financing and supporting the states to

strengthen public health systems and healthcare delivery. Financing to the states is based on the state's Programme Implementation Plan (PIP). The State PIPs comprises following major pools — (a) NRHM RCH Flexible Pool, (b) National Urban Health Mission Flexible Pool, (c) Flexible Pool for Communicable Diseases, (d) Flexible Pool for Non-Communicable diseases, and (e) Infrastructure Maintenance.

Table 11.13 : Fund Disbursed to Health Societies (2011-12 to 2018-19)

(Rs. lakh)

NRHM A	NRHM B	NRHM C	NRHM D	NRHM E	NRHM F	NRHM G	Total
2011-12							
43853.5	24994.7	8792.1	–	–	–	525.5	78165.8
2012-13							
60305.2	29520.9	7948	–	141.8	2590.1	–	100506
2013-14							
68535.1	17995.8	9045.7	–	178.7	1774.7	92.7	97622.7
2014-15							
67011.5	25135.5	9243.1	192.0	61.5	2785.1	542.6	104971.3
2015-16							
72371.2	21000.1	11251	2.0	552.3	5694.1	860.9	111731.6
2016-17							
77868.9	42949.9	7869.8	15.5	282.3	3542	834.4	133362.8
2017-18							
51823.69	45011.6	8904.61	1.5	5.3	4831.49	447.29	111025.5
2018-19							
63628.62	70675.98	15469.14	7.1	44.5	2306.57	354	152485.9

Source : State Health Society, GoB

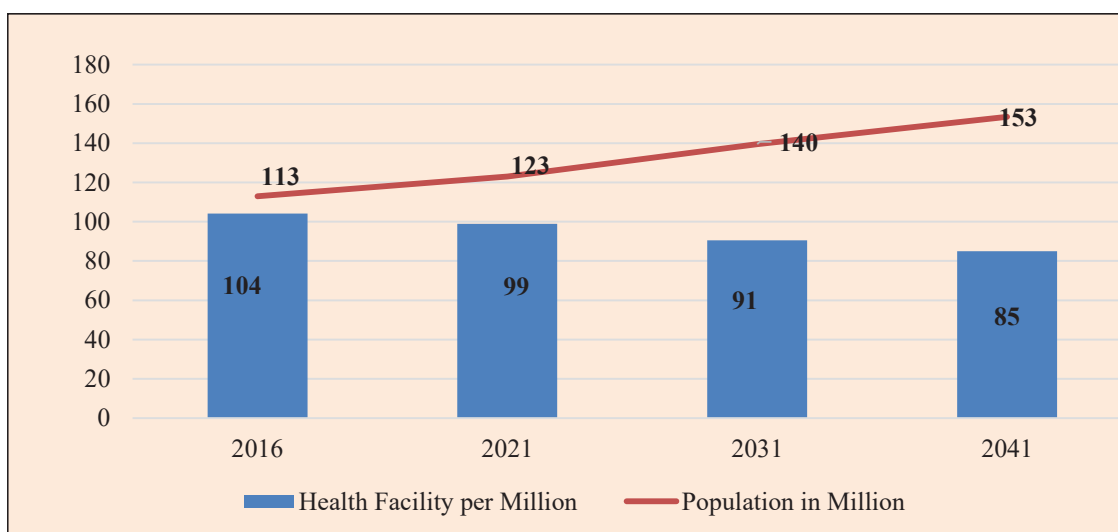
Over the last eight years, a total sum of Rs. 8898.7 crore was disbursed under NRHM to different district health societies to strengthen public health services with a focus on primary health care. The NRHM funds have been released to districts through the health societies under seven components. They are — Reproductive and Child Health (RCH) flexi-pool (NRHM-A), Mission flexi-pool (NRHM-B), Immunization (including Pulse Polio) (NRHM-C), National Disease Control Programmes (NRHM-D), National Urban Health Mission (NUHM) (NRHM-E), Integrated Disease Surveillance Programme (IDSP) (NRHM-F) and Revised National

Tuberculosis Control Programme (RNTCP) (NRHM-G). A component-wise breakdown of expenditure suggests that in 2018-19, disbursement of funds under the NRHM-B (46 percent) and NRHM-A (42 percent) were higher than those of other components of NHM. For all other components together, it was about 12 percent (Table 11.13). The details of district-wise fund disbursement to health societies are given in Table A 11.14 (Statistical Appendix).

Policy Implications for Population Growth for Health

The scope and emphasis of public health services are necessarily influenced by the changing characteristics of the population it serves. The rate of population growth affects long-range planning of public health and medical facilities. Similarly, alterations in age composition, internal migration, changes in population density and urban-rural movement are all required to be noted by the health system to solve the new problems they may create. Among such characteristics of the population, ageing of the population is one of the most important burden on national health. If health facilities remain at current levels, rising population over the next two decades (even with slowing population growth rates) will reduce the per capita availability of hospitals (health facilities) in Bihar (Chart 11.7). Hence, there is a strong case for expanding medical facilities to meet the population burden and greater provision of geriatric care. A major problem with planning for the provision of medical facilities is the scarcity of relevant data, especially on private hospitals. Thus, to assess the true picture of health facilities available in the state, efforts should be made to collect information on both public and private hospitals.

Chart 11.7 : Number of Health Facilities in Bihar per 1 million Population (Estimated)



LaQshya

Government of India launched 'LaQshya' (Labour Room Quality Improvement Initiative) in 2017 to improve quality of care in labour room and maternity operation theatres in public health facilities. It is an all-round approach focused at intra-partum and immediate post-partum period.

Aim

To reduce preventable maternal and new-born mortality, morbidity and stillbirths associated with the care around delivery in Labour room and Maternity Operation Theatre and ensure respectful maternity care.

Objectives

To reduce maternal and new-born mortality and morbidity due to haemorrhage, retained placenta, preterm, preeclampsia and eclampsia, obstructed labour, puerperal sepsis, new-born asphyxia, and new-born sepsis, etc.

To improve quality of care during the delivery and immediate post-partum care, stabilization of complications and ensure timely referrals, and enable an effective two-way follow-up system.

To enhance satisfaction of beneficiaries visiting the health facilities and provide Respectful Maternity Care (RMC) to all pregnant women attending the public health facilities.

Following types of healthcare facilities have been identified for implementation of the programme:

Government medical college hospitals

District Hospitals and equivalent health facilities

Designated First Referral Units (FRU) and Community Health Centres (CHC) with high case load over 100 deliveries/month (60 in hills and desert areas)

Presently, 2427 public health facilities across country have been identified for implementation

11.3 Drinking Water Supply and Sanitation

A regular access to safe drinking water and sanitation is critical for healthy living. The State Government is solely responsible for provision of clean drinking water and sanitation to improve the health status of a population. As per National Statistical Office (NSO) Report on Drinking Water, Sanitation, Hygiene and Housing condition in India (76th Round, July-December, 2018), it was revealed that the major source of drinking water of the households in Bihar was handpump in the rural areas and tube-wells and handpumps in the urban areas. About 94.3 percent of the households in the rural areas used handpumps and about 75.8 percent of the households in the urban areas used handpumps or tube-wells as the principal source of drinking water. Among these,

about 91.8 percent of the households in the rural and about 95.3 percent in the urban areas had drinking water facilities within the household premises. For India, the corresponding figures were 58.2 percent for rural and 80.7 percent for urban area. Regarding sanitation coverage, about 63.8 percent of the households in the rural and about 95.0 percent in the urban areas in Bihar had access to latrine. For India, the corresponding figures were a little higher — about 71.3 percent in the rural and about 96.2 percent in the urban areas.

The National Rural Drinking Water Programme (NRDWP) is a centrally sponsored scheme introduced in 2009 to provide adequate and safe drinking water to the rural population of the country. NRDWP focuses on creating and sustaining rural drinking water infrastructure in the country. This has resulted in ensuring provision of significant additional resources to the sector and creating an environment which enables development of infrastructure and capabilities for successful operation of drinking water supply schemes in rural areas. The goal of NRDWP is to ensure access to at least 55 litres of water per capita per day (lpcd), within their household premises or at a distance of less than 50 meters, to every rural household in the country, by 2024. Along with this, a sub-mission programme is being implemented since March 22, 2017 that aims to eliminate the problems of water quality, by 2024, in about 28,000 habitations affected by Arsenic and Fluoride across the country. This includes 229 arsenic affected and 526 fluoride affected habitations in Bihar. For implementation of these schemes, an amount of Rs. 80.37 crore has been approved by the concerned Ministry.

To deliver clean drinking water and proper sanitation facility to every citizen of Bihar, Har Ghar Nal Ka Jal (every household should have running tap water) and Shauchalaya Nirman Ghar Ka Sammaan (construction of toilets enhance the prestige of the home) are the two resolves made by the State Government, under its ambitions programme of Saat Nishchay. To fulfill the first goal, the State Government has launched three schemes, of which two are meant for rural areas and the third one for the urban area. In the rural areas, two of the schemes are — Mukhyamantri Gramin Peyajal Nischay Yojana (Quality Affected Areas) and Mukhyamantri Gramin Peyajal Nischay Yojana (Non-quality Affected Areas). The first one covers those areas where the quality of water is infected by arsenic, fluoride or iron, and the second one covers non-quality affected areas. In 2018-19, an amount of Rs. 1099.00 crore has been approved for schemes of quality affected areas and Rs. 500.00 crore has been approved for schemes of non-quality affected areas. The programme is being executed through Public Health and Engineering Department (PHED) and Panchayati Raj Department. Out of 38 districts, 29 districts in Bihar are affected by arsenic, fluoride and iron. Table 11.14 shows the number of wards in different districts where work has been started for elimination of contamination in domestic water.

Table 11.14 : Districts Mapping of Contamination

Contaminants	Affected Districts
Arsenic (14 Districts)	Begusarai (432), Bhagalpur (582), Buxar (264), Darbhanga (22), Katihar (66), Khagaria (274), Lakhisarai (166), Munger (122), Samastipur (314), Saran (47), Sitamarhi (4), Patna (155), Bhojpur (451), Vaishali (173)
Fluoride (11 Districts)	Aurangabad (31), Banka (858), Bhagalpur (214), Gaya (230), Jamui (639), Kaimur (231), Munger (103) Nalanda (246), Rohtas (325), Sheikhpura (245), Nawada (255)
Iron (11 Districts)	Araria (1027), Begusarai (1077), Bhagalpur (38), Katihar (1004), Khagaria (498), Kishanganj (1256), Madhepura (1240), Munger (18), Purnea (1256), Saharsa (486) and Supaul (995)

Note : 1. The figures in bracket represent the number of wards in which the work has started

2. Till date, 11.24 lakh households have been provided connection by PHED

Source : Public Health Engineering Department, GoB

To address the need of sanitation, a massive programme, Swachh Bharat Mission was started by the Central Government to ensure Clean India by 2019. The father of nation, Mahatma Gandhi, always emphasised on cleanliness, because it is the key to healthy and prosperous life. Keeping this in mind, the Central Government had launched the Swachh Bharat Abhiyan on October 2, 2014. The mission is being implemented in all rural and urban areas. The urban component of the mission is executed by the Ministry of Urban Development, and the rural component by the Ministry of Drinking Water and Sanitation.

Lohiya Swachh Bihar Abhiyan (LSBA)

To tackle the sanitation problems in Bihar, two schemes have been started by the State Government — Lohiya Swachh Bihar Abhiyan for rural areas and Shauchalaya Nirman (Urban) Yojana for urban areas. These two schemes are directed towards one of the resolve of the State Government —‘Shauchalaya Nirmaan Ghar ka Samman’. Under Lohiya Swachhata Yojana, the State Government has decided to cover all APL or BPL families in rural areas, wherein an incentive amount of Rs. 12,000 is given to all families, APL or BPL. In the urban areas, an incentive amount of Rs. 4000 is given by the Central Government under the Swachh Bharat Mission (Shahri). The State Government has decided to give an additional Rs. 8000 under Shauchalaya Nirmaan (Shahri Kshetra) Yojana as an incentive from its own funds so that all households in towns get Rs 12,000 as the total incentive money. The Lohiya Swachh Bihar Abhiyan is a mission of State Government formed by adding both state scheme, Lohiya Swachhta Yojana and Central Scheme, Swachh Bharat Mission Gramin. The implementation of LSBA was transferred to the Rural Development Department from the Public Health Engineering Department (PHED) in June 2016. Since then, Jeevika has been working in a mission mode for successful implementation of the scheme. The large SHG-base of Jeevika is being utilised to bring about the desired behavioural change.

Cumulatively, till September 2019, a total of 1.13 crore Individual Household Latrines (IHHL) have been constructed in 38 districts, declaring 38,691 villages and 534 blocks as Open Defecation Free (ODF).

The progress of work under water supply and sanitation and handpumps for the entire state are presented in Table 11.15. The yearly achievement under water supply and sanitation varies from year to year. As regards the number of handpumps installed under NRDWP, there is a constant progress till 2015-16 when 26.7 thousand handpumps were installed; thereafter, there is a decline in the recent years. As regards coverage of water quality problems, the highest achievement was made in 2013-14, when 12.8 thousand habitations were covered under the scheme. In 2018-19, the total handpumps installed under NRDWP was 3.7 thousand and water quality problems have been solved in even more 20290 wards as per Mukhyamantri Peyjal Nishchay Yojana. A considerable achievement is recorded in the construction of Individual Household Latrine (IHHL) in all these eight years. Out of the total 61.4 lakh IHHL constructed, 23.9 lakh (38.9 percent) latrines are for APL families and 37.5 lakh (61.1 percent) latrines are for BPL families. The district-wise coverage of habitations for water supply and sanitation through central schemes is presented in Tables A 11.15 and A 11.16 (Statistical Appendix). In 2018-19, three best performing districts in terms of installation of handpumps were — Muzaffarpur (405), Nalanda (344) and Gaya (265). In the same period, three best performing districts in terms of construction of IHHL were — Madhubani (5.9 percent), Samastipur (5.2 percent) and Darbhanga (5.1 percent).

Table 11.15 : Achievement under Water Supply and Sanitation (2011-12 to 2018-19)

(Figures in Number)

Year	Handpumps Installed	Slipped back Habitations/ Water quality problems covered	Individual Household Latrine (IHHL) constructed		
			APL	BPL	Total
2011-12	28286	11243	193875 (23.1)	646052 (76.9)	839927 (100.0)
2012-13	31926	10960	236021 (29.6)	560678 (70.4)	796699 (100.0)
2013-14	34289	12787	63190 (39.1)	98456 (60.9)	161646 (100.0)
2014-15	24287	12236	47056 (28.4)	118401 (71.6)	165457 (100.0)
2015-16	26691	7189	146669 (34.3)	280365 (65.7)	427034 (100.0)
2016-17	6373	1289	320332 (36.7)	551999 (63.3)	872332 (100.0)
2017-18	8899	266	1246626 (36.3)	2187939 (63.7)	3434478 (100.0)
2018-19	3672	20290	2387019 (38.9)	3748536 (61.1)	6135555 (100.0)

Note : 1. Figures in the parenthesis represent percentage share of APL and BPL
2. From 2018-19 onwards, all wards will be covered as per Mukhyamantri Peyjal Nishchay Yojana

Source : Public Health Engineering Department, GoB and JEEViKA

The fund utilisation under NRDWP, during the period 2012-13 to 2018-19, is shown in Table 11.16. The utilisation of fund has increased steadily from 80.8 percent in 2012-13 to 100.0 percent in 2016-17. However, there is a slight decrease in utilization percentage in 2017-18 (95.6 percent) and sharp decrease in 2018-19 (60.8 percent). This fund utilisation has definite impact on physical achievement. An increasing trend should be ensured in the coming years to promote hygienic sanitation facility throughout the state.

The details of financial and physical status for water supply and sanitation are presented in Tables 11.17 and 11.18. The annual growth rate in expenditure in the past seven years was 42.7 percent. In the same period, the revenue expenditure grew at the rate of 49.2 percent and capital expenditure at the rate of 31.3 percent respectively. Along with financial progress, the physical target has also shown year-wise increase with some year-to-year variation in the intermediary years. For 2018-19, the target-wise coverage under 'Har Ghar Nal Ka Jal' was 62,749.

Table 11.16 : Financial Progress under NRDWP (2012-13 to 2018-19)

(Rs. crore)

Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Outlay	351.0	353.8	426.3	296.1	340.0	400.0	400.0
Expenditure	283.5	299.0	375.4	269.2	340.0	382.3	243.2
Percentage of Utilisation	80.8	84.5	88.0	90.9	100.0	95.6	60.8

Source : Public Health Engineering Department, GoB

Table 11.17 : Financial Status of Water Supply and Sanitation (2012-13 to 2018-19)

(Rs. Crore)

Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	CAGR
Total Expenditure	620.6	1313.8	1489.5	1383.6	2366.1	4101.9	6872.6	42.7
Revenue Expenditure	362.2	695.7	604.3	610.1	1202.2	2338.4	5387.3	49.2
Capital Outlay	258.4	618.2	885.2	773.5	1163.9	1763.6	1485.4	31.3

Source : Public Health and Engineering, GoB

Table 11.18 : Physical Targets in State Plan Schemes for Water Supply and Sanitation (2012-13 to 2018-19)

(Figures in Number)

Year	Installation of New instead of Old Hand Pumps	Ward -wise target under Har Ghar Nal Ka Jal
2012-13	50492	15015
2013-14	94526	13832
2014-15	105688	13000
2015-16	127449	7493
2016-17	3139	7777
2017-18	11720	9263
2018-19	8450	62749*

Note : * Target of ward-wise coverage under Har Ghar Nal Ka Jal under Nischay Yojana. Data includes coverage of Piped water scheme and works done by PRD.
Source : Public Health and Engineering, GoB

11.4 Education, Art, Culture and Youth

Education is the basis for developing and empowering children with knowledge and skills, which facilitate their access to productive employment. The education system has several challenges like the changing dynamics of the population, requirement of quality education, affordable vocational trainings, access to higher education, innovation and research. Keeping in view these challenges, various educational programmes are being implemented by the State Government, some of them with collaborations from the Central Government. To enhance the quality of technical education, institutes like Indian Institute of Technology and Indian Institute of Management have been established. The Central Government has also initiated schemes like Rashtriya Madhyamik Shiksha Abhiyan, Rashtriya Uchcharat Shiksha Abhiyan, and choice based credit system to enhance academic standards and quality of higher education. All these contribute towards economic growth and human development.

The education system of India is divided into three main layers — Elementary, Secondary and Higher Education. The Elementary education ranges from Grades I-VIII and children in the age group of 6-14 are a part of it and are entitled to free and compulsory education, as mandated by the Right to Education (RTE) Act (2010). The elementary level is further divided into 2 sub-categories — Primary (Grades I-V) and Upper Primary (Grades VI-VIII). A child undergoes Secondary education for four years (Grades IX-XII), split into Secondary (Grades IX-X) and Higher Secondary (Grades XI-XII). The Higher Education is the last stage which is divided into two streams — the academic stream and the vocational stream. The academic stream is envisioned

to prepare students for further study at a university or other higher educational institution, while the vocational stream prepares students for work or further vocational education. This section presents the status of education in Bihar, in terms of literacy rate, enrolment ratio, dropout rate, number of schools and teachers, expenditure on education, Mid-Day Meal Scheme, Sarva Shiksha Abhiyan and a few other related activities.

Literacy Rate

The literacy rate in Bihar remains one of the lowest in the country, but the state has made remarkable progress in this field in the last decade. The literacy rate in Bihar increased from 47.0 percent in 2001 to 61.8 percent in 2011, implying an increase of 14.8 percentage point during the decade (Table 11.19). This decadal increase is not only the highest among all the decades since 1961, it is also the highest among all the states in India for the decade 2001-2011. It might be noted here that, for the country as a whole, the literacy rate in 2011 was 72.9 percent, compared to 64.8 percent in 2001, implying an increase 8.1 percentage point. Apart from recording the highest increase in literacy rates, Bihar has been able to considerably reduce the gender difference in its literacy rates. In 2001, the male and female literacy rates in Bihar were 60.3 percent and 33.6 percent respectively, implying a difference of 26.7 percentage point. In 2011, the gender-wise literacy rates were 71.2 percent (male) and 51.5 percent (female), implying a reduced gender difference of 20.1 percentage point. This was possible because the decadal growth in female literacy rate in Bihar was as high as 17.9 percent, compared to 10.9 percent for the males. This appreciable performance of Bihar in promoting literacy can be ascribed to two factors. First, due to awareness of social justice, the demand for education is now very high among all sections of the society and the second, state government has considerably enhanced its expenditure on education.

Table 11.19 : Trend of Literacy Rates in India and Bihar (1961-2011)

Year	India			Bihar			Gender Gap	
	Male	Female	Total	Male	Female	Total	India	Bihar
1961	40.4	15.4	28.3	35.2	8.2	22.0	25.1	27.0
1971	46.0	22.0	34.5	35.8	10.2	23.2	24.0	25.5
1981	56.4	29.8	43.6	43.8	15.8	32.3	26.6	28.0
1991	64.1	39.3	52.2	52.5	22.9	37.5	24.8	29.6
2001	75.3	53.7	64.8	60.3	33.6	47.0	21.6	26.7
2011	80.9	64.6	72.9	71.2	51.5	61.8	16.6	20.1

Source : Census of India

Elementary and Secondary Education

For a socially disadvantaged state like Bihar, it is the elementary education sector that commands the highest importance, since it is this sector which feeds students to the secondary sector which, in turn, feeds students to the higher education sector. The progress in elementary education also implies that the process is an inclusive one; since it is more relevant for a large number of students who are first generation learners coming from disadvantaged sections of the society. The total number of primary schools in Bihar increased from 40,934 in 2011-12 to 42,932 in 2017-18. Similarly, the number of upper primary schools increased from 236 in 2011-12 to 31,074 in 2017-18, taking the total number of elementary schools to 74,006 from 41,170. The success of elementary education is determined by two crucial educational indices — high enrolment ratio and low dropout rate. The performance on these two indices, in turn, is mostly influenced by the availability of educational facilities like schools, teachers, etc.

Enrolment Ratio

The progress towards the goal of universal access to education has been steady over the years. Table 11.20 shows total enrolment at primary and upper primary levels in Bihar, during 2012-13 to 2017-18. The annual growth rate of enrolment in primary level over this period was 0.6 percent. The total enrolment in primary level was 160.08 lakhs in 2017-18, increasing from 154.51 lakhs in 2012-13. Previously, the children passing out of primary classes were not able to get admission in the upper primary classes, because of non-availability of upper primary schools within a reasonable distance from their residence. During 2007-08 and 2008-09, this deficiency was removed by the State Government by upgrading many of the primary schools to upper primary level. Thus, Bihar has now reached a stage where enrolment in elementary classes for the children in age-group 6-14 years is nearly universal. At the upper primary level, the total enrolment has increased from 60.36 lakh in 2012-13 to 75.76 lakh in 2017-18, implying an annual growth rate of 4.5 percent. As a whole, the total enrolment, taking both primary and upper primary levels, rose to 235.84 lakhs in 2017-18 from 214.87 lakhs in 2012-13, with an annual growth rate of 1.8 percent. Additionally, the total enrolment for SC and ST students during this period has also grown at the rate of 3.0 and 4.8 percent respectively. Further, the gender gap in elementary education is also decreasing over the years, as the growth rate of enrolment of girls was 1.8 percent during 2012-13 to 2017-18, compared to 1.7 percent for the boys. The total enrolment of boys (121.70 lakhs) at the elementary level was only marginally higher than that of the girls (114.14 lakhs) in 2017-18. This pattern of higher growth rate of enrolment for girls, and a marginally lower share of girls in total number of students, is also observed for both primary and upper primary schools. Taking primary and upper primary together, boys accounted for 51.6 percent of the total enrolment, while the share of girls was 48.4 percent in 2017-18.

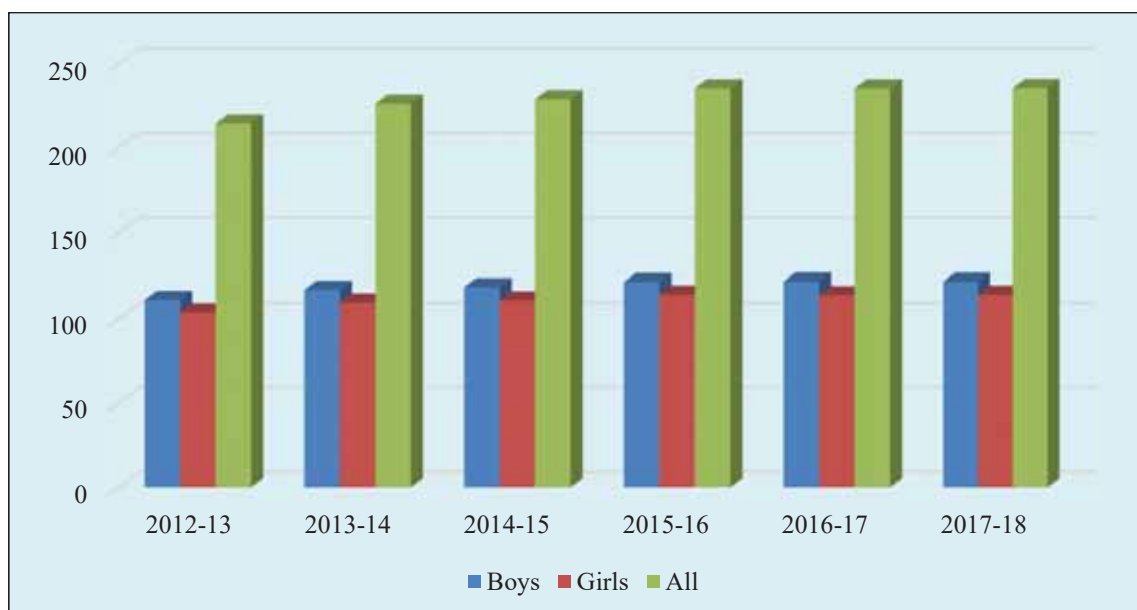
Table 11.20 : Total Enrolment in Primary and Upper Primary Levels (2012-13 to 2017-18)

(Number in lakh)

Level/ Type of Students		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	CAGR
Primary								
Boys	Combined	79.74	83.34	83.72	84.4	83.97	82.69	0.6
	SC	14.5	15.81	15.58	16.01	15.98	15.53	1.2
	ST	1.59	1.64	1.7	1.81	1.83	1.9	3.7
Girls	Combined	74.77	77.86	77.63	78.96	78.35	77.39	0.6
	SC	13.21	14.47	14.39	14.8	14.89	14.35	1.5
	ST	1.33	1.36	1.4	1.5	1.48	1.53	3.0
All	Combined	154.51	161.2	161.35	163.36	162.32	160.08	0.6
	SC	27.71	30.29	29.97	30.81	30.87	29.88	1.3
	ST	2.92	3.01	3.11	3.31	3.31	3.43	3.3
Upper Primary								
Boys	Combined	31.34	33.66	34.77	37.08	37.83	39.01	4.4
	SC	4.81	5.59	6.12	6.47	6.75	6.68	6.7
	ST	0.55	0.58	0.61	0.72	0.74	0.8	8.2
Girls	Combined	29.02	31.75	33.14	35.23	35.5	36.75	4.6
	SC	4.23	5.11	5.47	5.92	6.31	6.36	8.2
	ST	0.46	0.48	0.53	0.64	0.64	0.69	9.2
All	Combined	60.36	65.41	67.91	72.31	73.33	75.76	4.5
	SC	9.04	10.71	11.59	12.39	13.06	13.04	7.4
	ST	1.01	1.07	1.15	1.36	1.37	1.49	8.5
Total								
Boys	Combined	111.08	117.00	118.49	121.48	121.8	121.7	1.7
	SC	19.31	21.40	21.7	22.48	22.73	22.21	2.7
	ST	2.14	2.22	2.31	2.53	2.57	2.7	5.0
Girls	Combined	103.79	109.61	110.77	114.19	113.85	114.14	1.8
	SC	17.44	19.58	19.86	20.72	21.2	20.71	3.3
	ST	1.79	1.84	1.93	2.14	2.12	2.22	4.7
All	Combined	214.87	226.62	229.26	235.67	235.65	235.84	1.8
	SC	36.75	41.01	41.56	43.2	43.93	42.92	3.0
	ST	3.93	4.08	4.26	4.67	4.68	4.92	4.8

Source : Department of Education, GoB

Chart 11.8 : Total Enrolment in Elementary Level (2012-13 to 2017-18)



The district-wise data on enrolment for all students, as well as those belonging to SCs and STs is, presented in Tables A 11.7 to A 11.19 (Statistical Appendix). It clearly emerges from the table that the increase in enrolment in elementary classes is indeed faster in those districts where the literacy rates are relatively lower. Most of these low literacy rate districts are in North Bihar. In 2017-18, three districts recording the highest enrolment in primary classes were — Muzaffarpur (9.91 lakh), Patna (7.32 lakh) and Madhubani (6.85 lakh). For upper primary classes, three districts with the highest enrolment were — East Champaran (7.64 lakh), Saran (5.75 lakh) and West Champaran (5.18 lakh). As regards SC students, the best performing district at both the levels was Gaya (2.87 lakh) and the worst performing district was Arwal (0.17 lakh) for primary and Kishanganj (0.06 lakh) for upper primary. For ST students, the best performing district in primary education was Katihar (0.56 lakh) and West Champaran in upper primary (0.21 lakh).

Dropout Rate

The prevention of dropout is a relatively new focus of attention for the educational planners in Bihar. Formerly, dropout and retention trends were reported as secondary effects, rather than the principal outcome of education programmes. However, recently dropout has drawn more attention and emerged as a major education issue. With the push for Universal Primary and Basic Education, enrolments have grown, pulling in students from disadvantaged backgrounds and marginalized groups who were previously excluded from school. With larger numbers of vulnerable children and fewer resources per child, education systems face increasing difficulty in retaining students through completion of the basic education cycle. As students leave school without acquiring basic

skills, they not only deprive themselves, but their premature departure also represents a significant waste of scarce education resources, raising the unit cost of education. Thus, for a state like Bihar, it is important to carefully design preventive measures and intervention strategies that could prevent dropouts. The dropout rates at primary, upper primary and secondary levels during 2012-13 to 2017-18 in Bihar are presented in Table 11.21. At all levels of education, these rates have steadily declined during the recent years. At the primary level, dropout rate recorded a decrease of 15.5 percentage points, between 2012-13 (31.7 percent) and 2017-18 (16.2 percent). At the upper primary level, this decrease was 6.9 percentage points. This denotes that the dropout rates are declining rapidly at both the levels, promoting Universalisation of Elementary Education (UEE). The dropout rates at secondary level are much higher than that at the elementary level. The dropout rate was 56.1 percent in 2017-18 at the secondary level, implying a decrease of 6.7 percentage point from 62.8 percent in 2012-13. Thus, only 44 percent of students enrolled in Standard I presently complete their secondary level education in Bihar.

Table 11.21 : Dropout Rates at Primary, Upper Primary and Secondary Levels (2012-13 to 2017-18)

Year		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Primary	Girls	26.3	23.6	24.0	24.2	22.4	16.3
	Boys	36.0	33.6	29.2	25.6	22.0	17.1
	Combined	31.7	29.1	26.8	25.0	22.2	16.2
Upper Primary	Girls	38.7	34.7	38.9	36.3	38.1	36.2
	Boys	52.4	52.4	49.9	47.0	46.8	43.0
	Combined	46.7	46.5	45.1	42.2	42.9	39.8
Secondary	Girls	59.5	57.6	53.9	52.5	53.1	52.5
	Boys	65.2	64.7	61.2	61.5	59.4	59.0
	Combined	62.8	61.8	58.2	57.7	56.6	56.1

Source : Department of Education, GoB

It is encouraging to note that, at all the levels of education (primary, upper primary and secondary) the dropout rate of girl students is lower than that of the boys. As goals of elementary education have been substantially achieved, universalisation of secondary education should now be promoted in Bihar. This will generate human capital to accelerate growth and social development in the state. Table 11.22 shows the dropout rate of SC and ST students at the primary, upper primary and secondary levels during 2012-13 to 2017-18 in Bihar. In order to uplift the disadvantaged sections of the society, constant monitoring is required to enhance enrolment, retention and attendance of students, belonging to SC and ST groups. The figures in the table clearly indicate that the dropout

rates for SC and ST students have also decreased progressively during this period. The dropout rate of SC girls has been lower than that of SC boys throughout the period, at both elementary and secondary stages. For ST students again, one observes a steady decline in dropout rates in secondary level during this period.

Table 11.22 : Dropout Rates (SC & ST) at Primary, Upper Primary and Secondary Levels (2012-13 to 2017-18)

Year	Primary			Upper Primary			Secondary		
	Girls	Boys	Combined	Girls	Boys	Combined	Girls	Boys	Combined
	Scheduled Caste								
2012-13	24.3	36.3	31.2	49.0	61.4	56.5	65.1	70.6	68.4
2013-14	13.3	30.4	23.2	40.5	54.7	48.9	64.3	69.8	67.7
2014-15	25.5	32.9	29.6	39.7	47.1	44.0	61.5	67.8	65.3
2015-16	25.3	28.0	26.7	38.5	50.1	45.2	53.4	62.9	59.1
2016-17	23.6	23.9	23.8	34.5	49.0	42.9	51.9	60.3	56.7
2017-18	17.2	16.4	16.8	43.9	52.0	48.3	53.0	62.0	58.1
	Scheduled Tribe								
2012-13	NA	NA	NA	NA	23.8	13.1	26.6	38.2	33.9
2013-14	15.1	23.8	10.0	2.0	21.7	12.7	23.5	37.6	32.3
2014-15	21.2	0.9	8.3	3.2	27.8	18.0	31.8	45.7	40.5
2015-16	2.8	2.3	2.6	0.0	19.9	19.9	22.7	41.1	34.1
2016-17	15.0	11.8	13.3	31.0	39.8	37.1	34.5	47.4	42.3
2017-18	8.9	10.0	9.5	18.7	18.5	18.3	24.8	38.7	33.0

Source : Department of Education, GoB

Number of Schools

The total number of primary and upper primary schools in Bihar increased from 41,170 in 2011-12 to 74,006 in 2017-18. Three districts performing better in terms of number of schools are — East Champaran (3852), Patna (3366), and Muzaffarpur (3359). On the other hand, three districts with the least number of schools are — Sheikhpura (581), Arwal (526) and Sheohar (434). The district-wise number of primary and upper primary schools is presented in Table A 11.20 (Statistical Appendix).

The Pupil-Teacher Ratio (PTR) is an important indicator of quality of education. The number of teachers need to be increased in Bihar with the growth in enrolment ratio. At primary level, the PTR should be 30:1 and at the upper primary level it should be 35:1. The Rashtriya Madhyamik Shiksha Abhiyan (RMSA) framework specifies that the PTR at secondary level should be 30:1.

The total number of teachers at primary and upper primary schools increased from 3.5 lakh in 2012-13 to 4.1 lakh in 2017-18. In terms of number of teachers, Siwan (20,499), Patna (20,347) and East Champaran (20,037) were the best performers in 2017-18, whereas Sheikhpura (2264), Sheohar (2572) and Arwal (3227) were the worst performers. The district-wise number of teachers at primary and upper primary schools is presented in Table A 11.21 (Statistical Appendix).

Expenditure on Education

An adequate expenditure on education is very important for the functioning of the educational sector. Table 11.23 shows that the total public expenditure on elementary, secondary and higher education has increased from Rs. 14,946 crore in 2013-14 to Rs. 30,736 crore in 2018-19 in Bihar. Along with this, it also shows the share of expenditure on education in total budget and in total expenditure on social services. The growth rate of total expenditure on education has been as high as 13.6 percent during this period. As regards its share in total expenditure, it has increased from 18.6 percent in 2013-14 to 20.1 percent in 2018-19. On the other hand, the share of expenditure on education to total expenditure on social services decreased from 52.9 percent in 2013-14 to 49.3 percent in 2018-19. About the breakdown of total expenditure on education in three components (elementary, secondary and higher), it is evident that primary education has the highest share of the total expenditure, compared to other two categories. In 2018-19, the expenditure on elementary education was 62.3 percent, secondary education was 24.2 percent and higher education was 13.5 percent.

Table 11.23 : Expenditure on Education (2013-14 to 2018-19)

Year	Expenditure on Education (Rs. crore)			Total	Expenditure on Education as percentage of	
	Elementary	Secondary	Higher		Total Budget	Social Sector
2013-14	7764 (51.9)	2987 (20.0)	4195 (28.1)	14946 (100.0)	18.6	52.9
2014-15	12140 (68.1)	3368 (18.9)	2325 (13.0)	17833 (100.0)	18.8	53.4
2015-16	13327 (68.7)	3677 (19.0)	2382 (12.3)	19386 (100.0)	17.3	50.1
2016-17	13880 (70.4)	3507 (17.8)	2326 (11.8)	19713 (100.0)	15.6	44.5
2017-18	15638 (66.1)	3930 (16.6)	4088 (17.3)	23656 (100.0)	17.3	47.3
2018-19	19152 (62.3)	7450 (24.2)	4134 (13.5)	30736 (100.0)	20.1	49.3
CAGR	16.4	15.3	4.7	13.6	13.5	16.4

Note : Figures in the parenthesis represent percentage share

Source : State Government Finances, GoB

Mid-Day Meal Scheme (MDMS)

The Scheme 'National Programme of Nutritional Support to Primary Education' (NP-NSPE), commonly known as Mid-Day Meal Scheme (MDMS), was launched on August 15, 1995 on a nationwide scale by the Department of Elementary Education and Literacy, under Ministry of Human Resource Development of the Central Government. The objective of the scheme is to provide nutritional meal to children in government and aided schools to increase enrolment, reduce dropout rate and improve the nutritional status of the children in the schools. The scheme was launched initially in 2408 blocks in the country. By 1997-98, the NP-NSPE was introduced in all blocks of the country. In 2001, MDMS became a cooked Mid-Day Meal Scheme with a minimum content of 300 calories of energy and 8-12 grams protein per day for a minimum of 200 days in a year. It was further extended in 2002 to cover not only children in Grades I -V, but also children studying in Education Guarantee Scheme (EGS) and Alternative and Innovative Education (AIE) centres. In addition to free supply of food grains, the revised scheme provided Central Assistance for — (a) Cooking cost at Rs 1 per child per school day, (b) Transport subsidy was raised from the earlier maximum of Rs. 50 per quintal to Rs. 100 per quintal for special category states, and Rs. 75 per quintal for other states, (c) Management, monitoring and evaluation costs at 2 percent of the cost of food grains, transport subsidy and cooking assistance, and (d) Provision of mid-day meal during summer vacation in drought affected areas. In 2006, the scheme was further revised to enhance the cooking cost to Rs. 1.80 per child per school day for states in the North Eastern Region and Rs. 1.50 per child per school day for other states. The nutritional norm was revised to 450 calories and 12 grams of protein. In October 2007, the scheme has been further revised to cover children in upper primary (Grades VI to VIII), initially in 3479 Educationally Backward Blocks (EBBs). From 2008-09, the programme covers all children studying in Government, Local Body and Government-aided primary and upper primary schools and the EGS/AIE centres including Madarsa and Maqtabas, supported under SSA of all areas across the country. The calorific value of a mid-day meal at upper primary stage has been fixed at a minimum of 700 calories and 20 grams of protein by providing 150 grams of food grains (rice/wheat) per child per school day. As per core scheme norm, the cost sharing pattern of MDMS is in the ratio of 60:40 for the Central and State Government. To achieve the objectives of the scheme, the guidelines prescribe the nutritional content and day-wise menu in the mid-day meal (Table 11.24).

Table 11.24 : Food, Nutritional and Calorific norms and Day-wise Menu under MDMS

Items	Primary (I-V)	Upper Primary (VI-VIII)
A. Nutritional Norms (Per child per day)		
1. Calorie	450	700
2. Protein	12 gms	20 gms
B. Food Norms (Per child per day)		
1. Food – grains (Rice/Wheat)	100 gms	150 gms
2. Pulses	20 gms	30 gms
3. Vegetables	50 gms	75 gms
4. Oil & fat	5 gms	7.5 gms
5. Salt & condiments	As per need	As per need
6. Micro-nutrients	Adequate quantities of micro-nutrients like iron, folic acid, vitamin-A etc. in convergence with NHM	
Day-wise Menu for MDMS in Bihar		
Monday	Rice + Mixed Dal + Green Vegetables	
Tuesday	Zeera Rice+ Soyabean Potato Vegetable	
Wednesday	Khichadi with leafy vegetables+ chokha+Banana/Seasonal Fruits	
Thursday	Rice + Green Vegetables + Mixed Dal	
Friday	Pulao+Kabuli Chana/Red Peas+Green Salad+Egg/Seasonal Fruits	
Saturday	Khichadi with leafy vegetables+ chokha+Banana/Seasonal Fruits	

Source : MDMS, GoB

The coverage of the MDMS signifies the percentage of children benefiting from the scheme (Table 11.25). In 2018-19, the coverage of MDMS at primary level was 60.8 percent, registering a decrease of 6.2 percentage points from 67.0 percent in 2013-14. Similarly, the coverage of MDMS at upper primary level was 67.0 percent in 2013-14 and it decreased to 56.3 percent in 2018-19.

Table 11.25 : Coverage of MDMS (2013-14 to 2018-19)

Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Class I-V						
Total Enrolment (in lakhs)	141.62	143.18	144.68	141.70	126.59	119.4
No. of Children Availing MDMs (per day) (in lakhs)	94.89	94.36	99.28	89.70	79.85	72.64
Coverage Percentage	67.0	65.9	68.6	63.3	63.1	60.8
Class VI-VIII						
Total Enrolment (in lakhs)	57.57	60.59	62.67	66.27	62.84	61.55
No. of Children Availing MDM (per day) (in lakhs)	38.57	36.99	40.02	37.80	36.24	34.65
Coverage Percentage	67.0	61.0	63.9	57.0	57.7	56.3

Source : MDMS, GoB

Apart from the fact that the actual coverage of MDMS at both the levels is much below an ideal of 100 percent, it is also observed from Tables A 11.22 and A 11.23 (Statistical Appendix) that the coverage of the scheme varies extensively across the districts. The low coverage districts at the primary level in 2018-19 were — Vaishali (53.1 percent), Bhojpur (54.3 percent) and Katihar (54.4 percent), while the districts with relatively high coverage were — West Champaran (70.7 percent), Kaimur (67.5 percent) and Begusarai (65.8 percent). The low coverage districts for MDMS at upper primary level in 2018-19 were — Katihar (46.7 percent), Araria (47.7 percent) and Purnea (48.9 percent). The high coverage districts at the upper primary level in the same year were — West Champaran (64.3 percent), Sheohar (62.7 percent) and Saran (61.4 percent).

Samagra Shiksha Abhiyan

Education is the most important tool for social, economic and political transformation and a key instrument for building an equitable society. Before 1976, education was the exclusive responsibility of the states. Later, the Constitutional Amendment of 1976 included education in the Concurrent List. The Union Budget, 2018-19, had proposed to treat school education holistically, without segmentation from pre-school to Grade XII. In order to improve school effectiveness and learning outcomes, Samagra Shiksha Abhiyan (an overarching programme extending from pre-school to Grade XII) has been launched by the Central Government in 2018-19. It subsumes the three erstwhile major flagship Schemes of the Ministry of Human Resource Development (MHRD) — (i) Sarva Shiksha Abhiyan (SSA), covering the elementary level (Grades I -VIII), (ii) Rashtriya Madhyamik Shiksha Abhiyan (RMSA) covering Grades IX-X and Grades XI-XII for certain components, and (iii) Centrally Sponsored Scheme on Teacher Education (CSSTE) that aims to provide infrastructural and institutional support to Teacher Education Institutions to enhance the quality of teachers across Grades I-X. This sector-wide development programme would also help harmonise the implementation mechanisms and transaction costs at all levels. The major objectives of the scheme are provision of quality education and enhancing learning outcomes of students, bridging down social and gender gaps in school education, and ensuring equity and inclusion at all levels of school education. The expected outcomes of the programme are envisaged as Universal Access, Equity and Quality, promoting Vocationalisation of Education and strengthening of Teacher Education Institutions.

The scheme will be implemented as a centrally sponsored scheme by the department through a single State Implementation Society (SIS) at the state level. At the national level, there would be a Governing Council, headed by the Minister of Human Resource Development and a Project Approval Board (PAB), headed by Secretary, Department of School Education and Literacy. The department will be assisted by a Technical Support Group (TSG) at Educational Consultants of

India Limited (EdCIL) to provide technical support in functional areas pertaining to access, equity and quality education. The new TSG will be formed by merging the TSGs of the Schemes of SSA, RMSA and CSSTE. The states would be expected to bring a single Plan for the entire school education sector. The fund sharing pattern for the scheme between Centre and States is at present in the ratio of 60:40 for non-special category states like Bihar. The major interventions proposed, across all levels of school education, under the scheme are: Universal Access including Infrastructure Development and Retention, Gender and Equity, Inclusive Education, Digital Initiatives, RTE Entitlements including uniforms, textbooks, pre-school education, vocational education, sports and physical education, etc. It is proposed that preference in the interventions would be given to Educationally Backward Blocks (EBBs), Left Wing Extremism (LWEs) affected districts, Special Focus Districts (SFDs), Border Areas and the 117 Aspirational districts. The main emphasis of the Scheme is on improving quality of school education by focussing on the two Ts – Teacher and Technology.

Kasturba Gandhi Balika Vidyalayas (KGBVs) are residential schools at upper primary level for girls belonging to disadvantaged groups such as SC, ST, OBC, Minority and Below Poverty Line (BPL) households. It aims to reduce gender gap at elementary level of education and is operational in Educationally Backward Blocks (EBBs). The EBB is an intermediate geographical cluster between village and a district, where the level of rural female literacy is less than the national average and the gender gap in literacy rate is above the national average. In KGBVs, 75 percent girls from SC, ST, OBC or Minority Communities would be accorded priority for enrolment and only thereafter, 25 percent girls from other families would be enrolled. The scheme of Samagra Shiksha has provision for existing KGBVs at upper primary level and Girls Hostels at secondary level to provide residential schooling facilities upto Grade XII. This would provide the facility of at least one residential school for girls from Grades VI-XII in every educationally backward block which does not have residential schools under any other scheme. Till date, 535 KGBVs are operational in Bihar. Of these, 500 are being run through Vidyalaya Shiksha Samiti and 35 by non-governmental organisations (NGO). A total of 50,581 girls have been enrolled in KGBVs, out of which 20,243 are in Grade VI, 15,508 in Grade VII and 14,830 are in Grade VIII. Out of these 50,581 girls enrolled, 23,255 (46 percent) are SC, 4189 (8 percent) are ST, 17,963 (35 percent) are OBC, 1762 (4 percent) are BPL and 3412 (7 percent) are minorities. Each KGBV has 10 sanctioned posts of Teaching and Non-Teaching staff. Also, 280 instructresses for vocational training are presently working in those schools.

Launched in 2013, Rashtriya Uchchatar Shiksha Abhiyan (RUSA) is a Centrally Sponsored Scheme, which aims at providing strategic funding to eligible higher educational institutions in

different states. The funding norm will be 60:40 between the Central and State Governments. The funding would flow from the Central Ministry through the State Governments to the State Higher Education Councils, before reaching the identified institutions. The funding to states would be made on the basis of critical appraisal of State Higher Education Plans, which would describe each state's strategy to address issues of equity, access and excellence in higher education. During the first phase of RUSA, central assistance to states was provided for creation of one Model Degree College each in 60 Educationally Backward Districts (EBDs) where Gross Enrolment Ratio (GER) in higher education was less than the national average. During the second phase of RUSA, the focus is on opening new Model Degree Colleges in 'Aspirational Districts', identified by NITI Aayog and in unserved and underserved districts in North Eastern and Himalayan States.

Table 11.26 presents the approved budget and total expenditure of Bihar Education Project (BEP) in 2017-18 and 2018-19, along with its break-up among RUSA, RMSA and SSA. It is apparent from the table that the major share of BEP expenditure is on SSA. In 2017-18 and 2018-19, the expenditure on SSA was Rs. 8396.1 crore and Rs. 4826.3 crore respectively, nearly 96 percent of the total expenditure. The expenditure as a percentage of budget was also the highest for SSA — 79.5 percent in 2017-18 and 65.5 percent in 2018-19. For both RMSA and RUSA, this ratio is very low.

Table 11.26 : Status of Fund Received and Expenditure under Different Schemes (2017-18 and 2018-19)

(Rs. crore)

Programmes	Approved AWP & B	Fund Released			Total Expenditure	Expenditure as Percentage of AWP & B
		GOI	GOB	Total		
2017-18						
RUSA	133.33	29.51	17.75	47.26	44.37	33.3
RMSA	1448.74	186.34	134.51	320.85	320.85	22.1
SSA	10558.59	2557.97	5838.13	8396.10	8396.10	79.5
Total	12140.66	2773.82	5990.39	8764.21	8761.32	72.2
2018-19						
RUSA	85.16	2.10	0.40	2.50	1.00	1.2
RMSA	1353.73	113.21	96.15	209.36	208.80	15.4
SSA	7371.58	2960.59	1940.39	4900.98	4826.27	65.5
Total	8810.47	3075.90	2036.94	5112.84	5036.07	57.2

Note : AWP&B = Annual Work Plan and Budget

Source : Bihar Education Project, GoB

Higher Education

With an estimated population of young people (aged between 18-23 years) to be around 11.8 million, Bihar needs to create adequate opportunities for higher education. Bihar now has 879 colleges and 33 universities, of which 28 are traditional universities and 1 of them is an open university. There are also 4 private universities and 15 research institutes in the state (Table 11.27). In 2018, there were 278 government colleges and 564 local body colleges. To ensure the delivery of quality education, teachers' training is very important. There were 60 teacher training centres in Bihar in 2018, out of which only 31 were recorded as reporting centres. In comparison to 24 engineering colleges in 2014, the state has 34 engineering colleges in 2018. There were also 54 polytechnic institutes. Presently, 87 colleges and 7 universities have NAAC accreditation in the state. The district-wise details of affiliated and constituent colleges and technical colleges for 2015-16 to 2018-19 are given in Tables A 11.23 and A 11.24 (Statistical Appendix).

Table 11.27 : Institutions of Higher Education (2014 to 2018)

Type of Institutions/Year	2014	2015	2016	2017	2018
(in Number)					
Universities					
Central University	2	2	4	4	4
State Public University	14	14	13	13	17
Institute of National Importance	3	3	3	3	5
State Open University	1	1	1	1	1
Institute Under State Legislative Act	1	1	1	1	1
Deemed University	1	1	1	1	1
State Private University					4
Total	22	22	23	23	33
Research Institute	15	15	15	15	15
Colleges/Centre					
Government Colleges/ Constituent College	278	276	276	277	278
Local Body Colleges/ Affiliated College	416	468	478	496	564
P.G Centre/Off-Campus Centre	9	9	9	9	9
Recognized Centre	13	16	18	18	28
Total	716	769	781	800	879
Teacher Training Centre / Engineering Colleges					
Education/Teacher Training Centre (Primary)	43	60	60	60	60
Engineering College	24	23	28	28	34
Polytechnic	26	29	39	50	54
Total	93	112	127	138	148

Source : Department of Education, GoB

School Education Outcomes

- Mukhyamantri Kanya Utthan Yojana is an ambitious umbrella scheme of the State Government, which also includes Mukhyamantri Poshak Yojana. Under Mukhyamantri Poshak Yojana, in 2018-19, 77.4 lakh students have been benefitted with an amount of Rs. 730.84 crore.
- As per Samagra Shiksha Abhiyan, in 2018-19, a sum of Rs. 5589.82 crore has been spent which is around 82 percent of the allotted amount.
- In 2018-19, 21,286 primary schools have been opened and 19,630 primary schools have been upgraded to secondary levels under Sarva Shiksha Abhiyan. Similarly, 1106 schools have been upgraded to higher secondary levels under Rashtriya Madhyamik Shiksha Abhiyan.
- Bihar has made notable progress in bringing out-of-school children of 6-14 years age group into schools. In 2018-19, approximately 64.14 lakh children were included in school network by direct admission and 64.8 thousand were covered through special training. Now, the number of out-of-school children has come down to 1 percent.
- Teacher is the main component for ensuring quality education. Presently, there are 3,88,607 teachers working in the state. The gap between the sanctioned strength and the number of recruited teachers along with 42,754 part-time teachers are 2,46,688. The additional teachers will be recruited shortly. The Pupil Teacher Ratio (PTR) is about 50:1 in respect of working teacher, whereas it is 34:1 in respect of sanctioned teacher.
- Bihar Board of Open Schooling and Examination (BBOSE), is an autonomous organisation created by the Department of Education of the State Government. It is an Open and Distance Learning Institution, set up on the lines of National Institute of Open Schooling (NIOS), under the Ministry of Human Resource Development, Government of India. Its mandate is to 'Reach the Unreached' in terms of education and skill, through open and distance learning mode. Presently, there are 3301 teaching centres in the state. As per academic session 2017-18, a total 66,378 students have been enrolled, out of which 42,081

Art, Culture and Youth

The youth population constitutes a critical segment, as the future social, economic and political developments depend on them. India is one of the youngest nations in the world, with 27.5 percent of its population belonging to the age-group 15-29 years; in Bihar, the share is 24.2 percent. The State Government has earmarked an amount of Rs. 155.19 crore in 2019-20 for different schemes

of the Department of Art, Culture and Youth. For holistic development of art, culture and youth, the State Government has taken numerous steps:

- (i) **Creation of Cultural Environment** : An amount of Rs. 7.00 lakh has been allotted to each district for various programmes like District Establishment Day, District Youth Festival and Bihar Diwas, etc. On the occasion of Shravani Mela, cultural programmes were organized in various places like (Sultanganj) Bhagalpur, (Avrakha) Banka, (Kamarsaar) Munger, (Bhagwanpur) Vaishali and Muzaffarpur. The cultural group of Bihar participated in the Kullu Dussehra Festival held between October 19-25, 2018 at Kullu, Himachal Pradesh. Patna Literature Festival was organized between February 1-3, 2019 in which litterateur from different parts of the country and abroad had participated.
- (ii) **Cultural Programme in Extremism Affected Areas** : In order to connect extremist affected areas to the mainstream, cultural programmes were organized by district administration at Aurangabad, Rohtas, Kaimur, Patna, West Champaran (Bettiah), Banka, Sheohar, Lakhisarai, East Champaran (Motihari), Nawada, Gaya, Arwal, Vaishali and Jamui. In 2018-19, an amount of Rs. 30.00 lakh was earmarked at the rate of Rs. 2.00 lakh for each district.
- (iii) **Kalakaar Kalyan Kosh** : An Artist Welfare Fund has been developed to help the artists for treatment of disease, purchase of musical instruments, visits to different parts of the country or abroad to perform on invitation, and higher education and research. The fund can also be used for exhibition of artistic work or organising lectures and seminars.
- (iv) **Construction of Film City** : For the development of films in Bihar, film city will be constructed under Public-Private-Partnership mode in Rajgir, Nalanda. For this, 20 acres of land has been acquired in Rajgir. The state has also developed Bihar State Film Development and Promotion Policy, 2019.
- (v) **Eklavya State Awasiya Sports Training Centre** : The talented students of the government schools are selected as per the norms of Mukhyamantri Khel Vikas Yojana and sent to Eklavya State Awasiya Sports Training Centre for proper training, so that their talents could be developed. Presently, 40 such training centres have been approved, out of which 30 are already operational. These are running in 22 districts of the state.

11.5 Social Welfare

Social welfare refers to the provision of social services, principally health care, housing, social security, and education. The vision of the State Government is to build an inclusive society,

wherein members of the target groups can lead safe and dignified lives with adequate support for their growth and development. The State Government aims to support and empower the target groups through programmes of educational, economic and social development, and rehabilitation, wherever necessary. In this section, the information is provided for various schemes in Bihar which cover Dalits, Mahadalits, Backward Classes, Extremely Backward Classes, Minorities, Women and other weaker sections of the society.

Welfare of Scheduled Caste and Scheduled Tribe

The State Government had created a separate Department in 2007 for the welfare of scheduled castes and tribes in Bihar. There are 22 castes in Bihar which are listed as Scheduled Castes (SC), which together account for 15.9 percent of its population, while communities listed as Scheduled Tribes (ST) make up 1.3 percent of the state's population, according to 2011 census. The Department of Scheduled Caste and Scheduled Tribe runs the following various programmes for their economic, educational and social upliftment :

- **Scholarships for Children of Musahar and Bhuyia Community** : In 2018-19, under scholarship scheme for Musahar and Bhuyia, an amount of Rs. 10.66 crore was approved, out of which Rs. 2.40 crore was meant for committed and establishment expenditure. For 2019-20 again, Rs. 10.66 crore has been approved, with the share of committed and establishment expenditure being at Rs. 2.40 crore.
- **Pre-Matric Scholarships to Children of those Engaged in Cleaning and Prone to Health Hazards** : This scheme of Pre-Matric Scholarship to children of those engaged in occupations involving cleaning and prone to health hazards is a centrally sponsored scheme. Under the scheme, 100 percent central assistance is provided to State Governments from the Central Government. The objective of the scheme is to provide financial assistance to children of whose parents belong to one of the following categories : (i) Persons who are Manual Scavengers, (ii) Tanners and Flayers, (iii) Waste pickers and (iv) Persons engaged in hazardous cleaning. For students in Class I-X, the rate is Rs. 225 per month for ten months; for hostellers, from Class III-X, the amount is Rs. 700 per month, for ten months. In addition, an ad-hoc grant of Rs. 750 per student per annum to day scholars and Rs. 1000 per student per annum to hostellers would be admissible. Besides this, there are additional provisions of allowances for students amongst target groups with disabilities. In 2019-20, an amount of Rs. 40.00 lakh has been approved as establishment and committed expenditure under the scheme.

- **Chief Minister Merit Scholarship Schemes** : Under the Chief Minister Merit Scholarship Schemes which started in 2008-09, a scholarship of Rs. 10,000 is given to SC/ST students, who have passed matric examination of the Bihar School Examination Board with first division. From 2016-17, those SC/ST students who have passed board examination with second division, also get a scholarship of Rs. 8000. Further, for Higher Secondary education, those passing with first division get Rs. 15,000 and those passing with second division get Rs. 10,000 as a merit scholarship. An amount of Rs. 101.61 crore for students belonging to SC community and Rs. 12.68 crore for ST students was approved in 2018-19. Further, a sum of Rs. 26.47 crore was approved for higher secondary. In 2019-20, an amount of Rs. 105.00 crore for SC students and Rs. 16.36 crore for ST students have been allotted for those passing matric examinations. For SC/ST students in higher secondary, the allotment was Rs. 63.40 crore.
- **Babu Jag Jivan Ram Chhatrawas Construction Yojana** : Under centrally sponsored Babu Jag Jivan Ram Hostel Construction scheme, an amount of Rs. 8.50 crore was spent in 2018-19 and an amount of Rs. 8.50 crore again has been approved for 2019-20. This scheme of construction of hostels for Scheduled Caste students is one of the means to enable and encourage students belonging to these castes to attain quality education. Such hostels are immensely beneficial for the students hailing from rural and remote areas of the state. While the scheme of construction of hostels for SC girls is in operation from the Third Five Year Plan (1961-66), the same for boys was started with effect from the year 1989-90. The scheme was revised in 2008 and again recently in 2018.
- **Residential Schools** : At present, 65 Residential Schools for Scheduled Castes and 20 for Scheduled Tribes are being run by the State Government. The sanctioned strength of the schools were 25040 for SC students and 7520 for ST students. The academic work for ST students have started in 5 residential schools of Tharuhat Sector in 2018-19. A sum of Rs. 119.43 crore was allocated for SC students and Rs. 20.09 crore for ST students in 2018-19.
- **Pre-exam Coaching Centres** : Presently, 7 pre-exam coaching centres (Patna, Bhagalpur, Darbhanga, Gaya, Muzaffarpur, Saran and Ara) for SC students are being run, where about 1680 candidates are trained for different examinations. An approval was given for establishment of three more pre- exam training centres in Munger, Purnea and Saharsa in 2017-18. Apart from this, one Student Guidance Centre is operational at Chandragupta Institute of Management, Patna. All students who are being trained in these centres are entitled for monthly scholarships. In 2018-19, a sum of Rs. 1.98 crore has been allotted for establishment and committed expenditure of the scheme.

- **Integrated Tharuhat Development Project** : Under the Integrated Tharuhat Development Project, an amount of Rs. 97.45 crore has been approved for such blocks where Scheduled Castes (including Tharu Tribe) are in majority. Out of 258 schemes for Bagha-2, Ramnagar, Gaunaha and Mainatar blocks, 243 have already been completed and rest 15 are in pipeline.

The total budget for SC/ST welfare increased from Rs. 1844.72 crore in 2017-18 to Rs. 1926.14 crore in 2018-19 (Table 11.28). Moreover, the actual expenditure which was Rs. 1364.92 crore in 2017-18 increased to Rs. 1465.20 crore in 2018-19, indicating an increase of 2.1 percentage points in utilization percentage. The district-level data on physical and financial progress under major SC/ST welfare schemes in the state is presented in Table A 11.26 (Statistical Appendix). This data reveals considerable variation across the districts, for both physical and financial progress.

Table 11.28 : Overview of Outlay Allocation of SC and ST Welfare (2017-18 and 2018-19)

(Rs. crore)

Item	Major Head	2017-18			2018-19		
		Budget	Actual Expenditure	Utilization Percentage	Budget	Actual Expenditure	Utilization Percentage
SC & ST	2225	1388.18	920.39	66.3	1449.84	1049.09	72.4
Secretariat Service	2251	5.22	3.86	73.9	6.60	5.58	84.5
Capital Outlay	4059	434.21	428.07	98.6	457.50	402.83	88.0
Capital Outlay on Co-operatives	4425 / 2225	16.61	12.61	75.9	11.70	7.70	65.8
Other Administrative Service	2070	0.50	0.00	0.0	0.50	0.00	0.0
Total		1844.72	1364.92	74.0	1926.14	1465.20	76.1

Source : Department of SC/ST Welfare, GoB

Mahadalit

The Bihar Mahadalit Vikas Mission has been registered under the Societies Registration Act, 1860 for implementation of welfare schemes for the upliftment of Mahadalits, based on the report of the State Mahadalit Commission. The Commission observed that, out of the 22 scheduled castes in Bihar, 21 are acutely deprived in terms of economic, social, cultural and political status. The population belonging to these castes have not been benefited significantly from affirmative actions meant for the SC population. Thus, the idea of Bihar Mahadalit Vikas Mission is to fulfill the basic necessities of all Mahadalit communities through a number of specific schemes. Some of the schemes of the Mission are:

- **Vikas Mitras** : For proper implementation of the welfare programmes in panchayats and wards, Vikas Mitras have been appointed. These Vikas Mitras are selected from Mahadalit

community itself. To promote women empowerment, 50 percent of the posts are reserved for women. Presently, 9492 Vikas Mitras are working in the state.

- **Dashrath Manjhi Kaushal Vikas Yojana** : The scheme has been started with an objective to improve the economic condition of the Mahadalit Community through skill development training in different trades and thereby increase their employability. The scheme is being implemented by the Department of Labour Resources. Till date, 6 batches have started by Micro, Small and Medium Enterprises (MSME), Kolkata, out of which 5 have been already completed.
- **Vikas Register** : The register is maintained online by Bihar Mahadalit Vikas Mission, through Vikas Mitras to keep the record of different government welfare schemes through which Mahadalit families are benefited. Till date, a database of 35.50 lakh families has been prepared by Vikas Mitras.
- **Community Hall-cum-Workshed scheme** : Between 2010-11 and 2018-19, under Community Hall-cum-Workshed scheme, out of the target of constructing 4870 units, 3488 units have been constructed in different districts and work is in progress in 743 places. For 2018-19, there is a target for 400 more units.
- **Special School-cum-Hostel scheme** : The scheme is run by a non-government organization, (Nari Gunjan) in Patna and Gaya. The scheme has benefited 150 girls in Patna and 100 girls in Gaya till date. Both formal and informal education are being given to the beneficiaries. The school is receiving appreciation at the national level.
- **Sahayata (Call Centre)** : The call centre has been established as per 1989 Act and 1995 Rule. The centre will register the complains related to SC/ST atrocities and help in their complete eradication.

The Bihar State Scheduled Caste Cooperative Development Corporation was established in 1978 for all-round development of scheduled castes. The district offices of the Corporation are working in 36 districts of Bihar. Between 2013-14 and 2018-19, the corporation benefited 15,165 people through its subsidy scheme. In 2018-19, an amount of Rs. 641.10 lakh was distributed among 2031 people, of which Rs. 203.10 lakh was given as subsidy amount. The details are given in Table 11.29.

Table 11.29 : Subsidy Scheme of BSSCCDC (Executed through Bank) (2013-14 to 2018-19)

(Amount is Rs. lakh)

Year	No. of Beneficiaries	Bank Loan	Subsidy	Total
2013-14	3301	627.90	330.10	958.00
2014-15	1806	343.50	180.60	524.10
2015-16	2921	555.61	292.10	847.71
2016-17	2827	537.75	282.70	820.45
2017-18	2279	433.50	227.90	661.40
2018-19	2031	438.00	203.10	641.10
Total	15165	2936.26	1516.50	4452.76

Source : Department of SC/ST Welfare, GoB

Welfare of Backward and Extremely Backward Classes

The backward classes are those castes/communities that are notified as so by the State or Central Government. In Bihar, there are 131 backward castes and they account for about 60 percent of its population. In 2007-08, the State Government had constituted the Department of Welfare of Backward and Extremely Backward Classes for overall development of these communities. The outline of financial progresses from 2014-15 to 2018-19 for welfare of backward and extremely backward population is presented in Table 11.30. In the last five years, there have been fluctuations in allocations and expenditure for the welfare of backward classes. In 2014-15, the expenditure of the department was Rs. 1445.40 crore, which decreased to Rs. 1273.33 crore in 2018-19. However, the utilization percentage for BC and EBC welfare schemes has been more than 70 percent in these years.

Table 11.30 : Financial Progress of BC and EBC Welfare (2014-15 to 2018-19)

(Rs. crore)

Details	2014-15	2015-16	2016-17	2017-18	2018-19
Total Outlay	1477.97	2975.3	2000.6	1591.72	1643.83
Total Approved Amount	1477.97	2781.45	2000.6	1535.24	1521.35
Total Expenditure	1445.40	2695.07	1470.6	1223.16	1273.33
Utilisation percentage	97.8	90.6	73.5	76.8	77.5

Source : Department of BC and EBC Welfare, GoB

The welfare measures taken for Backward Classes (BC) and Extremely Backward Classes (EBC) are as follows:

- **Chief Minister Backward Classes Merit Scholarship Scheme** : Under Chief Minister Backward Classes Merit Scholarship Scheme, an amount of Rs. 55.94 crore has been given to the Department of Education for benefitting 55,942 students in 2018-19. There is provision of Rs. 60.00 crore in 2019-20 for benefitting 60,000 students.
- **Pre-Matric Scholarship Scheme** : Under Pre-Matric Scholarship Scheme, till date 1.25 crore students have been benefited with Rs. 1359.20 crore. In 2017-18, an amount of Rs. 911.94 crore has been made available for the scholarship scheme. In 2018-19, the corresponding sum was Rs. 978.71 crore.
- **Chief Minister Extremely Backward Classes Civil Merit Scheme** : Under this scheme, Rs. 1 lakh is given to the students qualifying UPSC (PT) and Rs. 50,000 is given to students for qualifying BPSC (PT).
- **Chief Minister Backward Classes and Extremely Backward Classes Hostel Grant Scheme** : Under this scheme, Rs. 1000 is given per student per month. This scheme enables students from disadvantaged classes to avail hostel facility for education.
- **Foodgrain Scheme for Backward Classes and Extremely Backward Classes Hostels** : As per this scheme, 15 kg foodgrain (9 kg rice and 6 kg wheat) is being supplied per student per month, to students from backward and extremely backward classes residing in hostels.
- **Pre-Examination Training Centres** : These centres have been established at 8 universities of the state in 2015-16 to provide free training for competitive examinations to BC and EBC students. Now, the facility has been extended to all 38 districts of Bihar.
- **Chief Minister Backward Classes and Extremely Backward Classes Skill Development Training Scheme** : Since 2017-18, Skill Development Training Programme for BC and EBC is being conducted at selected institutions on the basis of domain skilling by the Department of Labour Resources. The scheme is managed by Bihar State Backward Classes Finance and Development Corporation, Patna.

The physical and financial details of allocation for different welfare schemes for the backward and extremely backward population is presented in Table 11.31.

Table 11.31 : Physical and Financial Details of BC and EBC Welfare Programmes (2013-14 to 2018-19)

Year	Stipend for students of primary, middle and high school	Post-Matric Scholarship	OBC Girls' Higher Secondary Residential School (12 nos.)	Mukhyamantri Medhavriti Yojana for EBC students	Construction of 38 Jannayak Karpuri Thakur Hostels for EBC Students
No. of Beneficiaries (lakh)					
2013-14	98.00	0.36	0.02	0.35	—
2014-15	122.00	2.44	0.02	0.40	—
2015-16	183.00	3.79	0.02	1.45	—
2016-17	99.04	—	0.03	0.70	—
2017-18	62.33	2.56	0.02	0.50	—
2018-19	80.95	—	0.03	0.63	—
Fund Allocation (Rs. crore)					
2013-14	1168.24	58.15	5.85	35.00	9.35
2014-15	1054.70	369.97	7.26	40.00	—
2015-16	2253.98	619.78	9.77	144.97	5.00
2016-17	1359.21	—	12.16	87.25	10.00
2017-18	911.94	446.81	12.26	55.96	34.58
2018-19	978.71	338.43	12.64	62.63	5.00

Note : No allocation was made in 2016-17.

Source : Department of Backward and Extremely Backward Class Welfare, GoB

Minority Welfare

The socio-economic status of minority population is generally lower in Bihar, as in most other states of the country. Thus, to improve the socio-economic conditions of the minority communities through affirmative actions, a separate Department of Minority Welfare was established in Bihar in 1991. In Bihar, the religious minorities constitute 17.3 percent of the population, with 16.9 percent Muslims and the rest 0.4 percent belonging to other religions, like Buddhists, Jains, Sikhs, and Christians. Muslims constitute a large part of the population in Kishanganj (68.0 percent), Katihar (44.5 percent), Araria (42.9 percent) and Purnea (38.5 percent). Table 11.32 represents budget allocation and expenditure of the Department of Minority Welfare for 2013-14 to 2017-18. It is laudable to note that the utilization percentage has been more than 90 percent in the last three consecutive years.

Table 11.32 : Budget and Expenditure of Minority Welfare Department (2013-14 to 2017-18)

(Rs. lakh)

Year	BE	Actuals	Utilisation Percentage (%)
2013-14	33390.70	9266.10	27.8
2014-15	30075.10	28417.70	94.5
2015-16	52480.12	50862.19	96.9
2016-17	44545.12	93152.85	96.9
2017-18	40152.15	37310.62	92.9

Source : Department of Minority Welfare, GoB

The achievements of the Department in recent years are as follows :

- **Mukhyamantri Alpsankhayak Kalyan Chhatrawas Khadyanna Yojana** : The scheme has started in 2018-19 to reduce financial burden of minority students due to expenditure on higher education. Under this scheme, 6 kg wheat and 9 kg rice (a total of 15 kg foodgrains) are made available through doorstep delivery per student per month in those hostels where one-third of the hostellers are either BC or EBC or from minority community. Presently, the foodgrains are distributed in 16 hostels in 15 districts (Patna, Bhojpur, Rohtas, Kaimur, Saran, East Champaran, Madhubani, Saharsa, Supaul, Madhepura, Gaya, Katihar, Bhagalpur, Jehanabad and Nawada). In 2018-19, foodgrains worth Rs. 50 lakh has been distributed in these districts. For 2019-20, there is a provision for Rs. 1.00 crore.
- **Mukhyamantri Alpsankhayak Kalyan Chhatrawas Anudan Yojana** : Under this scheme, students residing in minority hostels are given a grant of Rs. 1000 per month to promote higher education among the minority community. In 2018-19, there was a provision of Rs. 1.00 crore, out of which Rs. 81.86 lakh was distributed among 8186 students. A provision of Rs. 3.00 crore has been made available for 2019-20.
- **Bihar Rajya Madarsa Shiksha Sudridhikaran Yojana** : Under this scheme, facilities like drinking water, library, equipment, toilets, multipurpose hall, official room , computer, science lab etc. for educational research will be provided for strengthening of Madarsa education. In 2018-19, a sum of Rs. 12.55 crore was approved for developing such facilities in Madarsas of Madhubani and Muzaffarpur.
- **Bihar Rajya Waqf Vikas Yojana** : For development of property registered under Sunni and Shiya Waqf Board, construction and maintenance work will be started for multipurpose buildings, guest house, marriage hall, Waqf office building, market complex, etc. A budget of Rs. 30.00 crore is proposed for this scheme in 2019-20.

- **Rajya Post-Matric Yojana** : Under State Post Matric Scholarship scheme, the State Government includes those boys/girls of minority community who are left out of Central Government's post-matric scheme. The scheme was started in 2017-18. In 2018-19, an amount of Rs. 32.79 crore has been distributed among 57,888 minority students.
- **Bihar Rajya Alpsankhayak Awasiya Vidyalaya Yojana** : In 2018-19, the State Government has decided to set up one residential school in each district for the students from the minority. Presently, the scheme is being launched in Kishanganj and Darbhanda districts.
- **Bihar Rajya Haj Samiti** : The annual grant of Bihar Haj Committee has been increased from Rs. 60.00 lakh to Rs. 100.00 lakh to provide better facilities to pilgrims going for Haj. In 2018, Rs. 32.27 lakh from the contingency fund has been spent as additional support on Khadimul Hujjaj and Supervisors who were sent to Saudi Arabia to accompany the pilgrims.
- **Muslim Divorcee/Deserted Women Assistance Programme** : Under Muslim Divorcee/Deserted Women Assistance Programme, financial assistance has been given to 12,527 divorcee / deserted Muslim women so far. The scheme was started in 2006-07. Since 2017-18, a revised sum of Rs. 25,000 per beneficiary is being given to each divorcee/ deserted woman in place of Rs. 10,000 earlier. In 2018-19, a total of 130 females have been benefitted by this e-welfare portal. The payment is made through Direct Benefit Transfer (DBT) method.
- **Mukhyamantri Alpsankhyak Vidyarthi Protsahan Yojana** : Under this scheme, a total of Rs. 34.40 crore was sanctioned through which 30,933 students were benefitted in 2018-19. The students of Fauqania and Maulvi who have passed Bihar State Madarsa Education Board with first division has also been covered under the scheme since 2017-18.

11.6 Women Empowerment

In the recent past, the concept of women empowerment has undergone considerable change, from welfare oriented approach to equity approach. It is now understood as the process by which the powerless women gain greater control over the circumstances of their lives. The Constitution of India not only grants equality to women, it also empowers the state to adopt measures of positive discrimination in favour of women. It was during the Eighth Plan when empowerment of women was first recognized as a distinct social goal. This was taken forward further in the Ninth Plan with the introduction of the concept of Women's Component Plan, whereby identified ministries were required to indicate the flow of funds to the programmes for women. Later, the Twelfth Plan identified the key indicators for gender equity to be addressed in the planning process through economic, social and cultural empowerment.

Bihar has been making various efforts to empower women in the recent years. The State Government has prepared the Women Empowerment Policy in 2015 and promoted a centre (Gender Resource Centre) for looking after gender related issues. This centre is a part of the Women Development Corporation, under the Department of Social Welfare. The gender inequality rising out of social norms and cultural traditions is now being addressed directly or indirectly through efforts which would change attitude towards women. The State Government has been publishing its gender budget since 2008-09. An overview of the gender budget for 2014-15 to 2018-19 is presented in Table 11.33. From the table, it is evident that the total outlay for women development has increased over the years, except once in 2015-16. The share of the outlay for women in total state budget has been about 11 percent, with some year-to-year variation. Correspondingly, outlays for women as percentage of GSDP have been around 3-4 percent.

Table 11.33 : Gender Budget Summary (2014-15 to 2018-19)

(Amount in Rs. crore)

Details	2014-15	2015-16	2016-17	2017-18	2018-19 BE
Category I schemes for Women (100% beneficiaries)	3920.10	2996.10	5564.80	8545.90	9287.99
Category II schemes for Women (30% beneficiaries)	8658.30	8130.90	9512.20	12069.50	16285.80
Total outlays for women	12578.30	11127.00	15077.00	20615.40	25573.79
Total Outlays for related Departments	33703.70	31010.80	36411.50	46658.80	60559.08
Outlays for women as a percent of total outlays of related Departments	37.20	35.90	41.40	44.20	42.23
Total size of the State budget	116886.00	120685.00	144696.00	160086.00	176990.27
Share of outlays in the State budget (percent)	10.80	9.20	10.40	12.90	14.45
GSDP	342951.00	369469.00	425888.00	487628.00	515634.00
Outlays for women as percent of GSDP	3.70	3.00	3.50	4.20	4.96

Source : Department of Finance, GoB

Gender Budgeting, however, is not confined to budgets alone; it also covers analysing various economic policies from the gender perspective. Table 11.34 represents the data for the gender budget items under different departments for 2017-18. Category I schemes are those which are provisioned entirely for women. Next, Category II schemes are those which are gender neutral; for such schemes, it is assumed that 30 percent of the allocation is for women beneficiaries. The table shows actual expenditure for 2017-18. It emerges from the data that out of overall expenditure, the expenditure for Category I schemes was 22 percent and, for Category II schemes, it was 78 percent.

Table 11.34 : Overview of Expenditure on Women Development (2017-18)

(Rs. crore)

Departments	2017-18 (Actuals)			2017-18 (Percent)		
	Under Category I	Under Category II	Total	Under Category I	Under Category II	Total
Social Welfare	520.37	1396.94	1917.31	16.93	12.84	13.74
SC and ST welfare	0.00	250.30	250.30	0.00	2.30	1.79
Public Health Engineering	0.00	566.84	566.84	0.00	5.21	4.06
Minority Welfare	0.00	89.48	89.48	0.00	0.82	0.64
Education Department	572.66	5341.30	5913.96	18.64	49.10	42.39
Health	454.99	914.49	1369.48	14.81	8.41	9.82
Rural Development	1458.64	1004.73	2463.37	47.47	9.24	17.66
Urban Development and Housing	0.00	38.09	38.09	0.00	0.35	0.27
Panchayati Raj	0.00	200.05	200.05	0.00	1.84	1.43
Labour Resource	6.15	0.00	6.15	0.20	0.00	0.04
BC and EBC Welfare	11.06	342.79	353.84	0.36	3.15	2.54
Revenue and Land Reforms	2.59	0.00	2.59	0.08	0.00	0.02
Art, Culture and Youth	0.00	11.25	11.25	0.00	0.10	0.08
Industry	0.00	131.22	131.22	0.00	1.21	0.94
Agriculture	0.00	375.35	375.35	0.00	3.45	2.69
Science & Technology	46.53	0.00	46.53	1.51	0.00	0.33
Building Construction	0.00	153.53	153.53	0.00	1.41	1.10
Home	0.00	41.04	41.04	0.00	0.38	0.29
Tourism	0.00	21.15	21.15	0.00	0.19	0.15
Total	3072.99	10878.52	13951.51	100.00	100.00	100.00

Source : Department of Finance, GoB

Table 11.35 : Flagship Schemes to Address Gender Disparity (2014-15 to 2018-19)

(Rs. crore)

Scheme	2014-15	2015-16	2016-17	2017-18	2018-19
Lakshmibai Social Security Pension Scheme	32.51	357.48	213.86	260.47	281.83
Mukhyamantri Nari Shakti Yojana	0.00	11.2	24.6	61.52	66.17
Mukhyamantri Kanya Vivah Yojana	143.54	26.85	21.59	38.16	46.51
Mukhyamantri Kanya Utthan Yojana	—	—	—	—	96.72
Total	266.05	395.53	266.2	436.42	491.23

Source : Department of Social Welfare, GoB

The interventions by the State Government to address gender disparity can be clubbed under two main heads: child protection (Kanya Utthan Yojana to stop female foeticide) and social and economic security (Lakshmibai Social Security Pension scheme, Mukhyamantri Kanya Vivah Yojana and Mukhyamantri Nari Shakti Yojana) (Table 11.35). The Mukhyamantri Nari Shakti Yojana (MNSY) was launched in 2007-08 with an objective to empower women and make them self-reliant. The scheme included setting up Helpline Services, Short Stay Homes, Working Women Hostels, and Protection Homes. The Mukhyamantri Kanya Vivah Yojana extends financial support of Rs. 5000 to girls of BPL families who get married at the age of 18 years and above. The expenditure on these flagship schemes has gradually increased between 2014-15 and 2018-19 by 84.6 percent.

The empowerment of women can be evaluated by three criteria — economic, social and cultural. The steps of the State Government under each of these criteria are presented below :

Economic Empowerment

- **Project Implementation Unit** : To accomplish the idea of social, economic and cultural empowerment of women in Bihar, Women Development Corporation has set up a Project Implementation Unit (PIU) to implement social and economic empowerment schemes.
- **Bihar Rural Livelihood Promotion Society (BRLPS)** : To achieve the aim of economic and social empowerment of rural poor, particularly women, BRLPS is implementing various interventions since its inception.
- **Micro-Insurance** : The target of hundred percent enrolment under Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) and Pradhan Mantri Suraksha Bima Yojana (PMSBY) was achieved in 38 districts by the insurance team. In 2018-19, 12.87 lakh SHG members were

enrolled. In the same year, 1083 claims were registered, of which 77 percent were settled worth Rs. 10.14 crore.

- **Alternative Banking – ‘Bank Humare Gaon’** : Business Correspondents facilitated the opening of 1.19 lakh individual accounts. In 2018-19, the total transactions were of Rs. 800.40 crore and the commission earned by Business Correspondents was Rs. 236.52 lakh. Cumulatively, till September 2019, transactions over Rs. 1234 crore was done by the Business Correspondents.
- **Digital Financing** : Digital financial inclusion of women has been achieved by Jeevika, working hand in hand with Vodafone, Airtel, Basix, SIDBI. This has promoted digital financial literacy. The intervention started with two blocks (Bihta and Maner) in Patna. Later, digital financial inclusion was extended to 165 blocks of 25 districts.
- **Satat Jeevikoparjan Yojana** : The scheme started in August, 2018 with an objective to address the needs of ultra-poor households traditionally engaged in production, transportation and selling of country liquor/ toddy. To be a beneficiary of this scheme, the ultra-poor households should be from SC/ST and other ultra-poor community. The scheme targeted to cover 1 lakh ultra-poor households through customised ultra-poor graduation approach in three years.
- **Key Livelihood Intervention** : Under this intervention, 6.28 lakh households were engaged in kitchen garden and 3.12 lakh in vegetable cultivation to improve income and nutritional status of the households.
- **Community-based Custom Hiring Carriers** : Under this scheme, a revenue of Rs. 9.87 lakh was generated by providing services to 4212 farmers by providing them the agricultural implements procured by Custom Hiring Carriers.
- **Integrated Goat and Sheep Development Scheme** : Under this scheme, Jeevika, in association with the Department of Animal Husbandry and Fisheries, has distributed 10,209 goats through 96 Producer Groups to 3434 households in 7 districts in 2018-19.
- **Mini-Indoor Saras Mela** : With the theme of ‘Unnat Mahila Ujjwal Bihar’, mini-indoor Saras Mela was organised at the multi-purpose hall of Gyan Bhawan (Patna) in September, 2018 and a total sale of Rs. 1.25 crore was made there.
- **Aarakshit Rozgar Mahilaon Ka Adhikar** : Under the Saat Nishchay programme, ‘Aarakshit Rozgar Mahilaon Ka Adhikar’ is one of the commitments of the State Government. Since 2016, 35 percent reservation is being given to women for recruitment in all services of the State Government.

Social Empowerment

- **Mukhyamantri Kosi Mulberry Pariyojna** : The scheme is being jointly implemented by the Department of Industry, MGNREGA wing of the Department of Rural Development, Rashtriya Krishi Vikash Yojana (under Department of Agriculture) and Jeevika in 8 districts (Saharsa, Supaul, Madhepura, Purnea, Araria, Kishanganj, Katihar and Bhagalpur). The aim of scheme to support Bhagalpur Silk Cluster and provide income generating options to marginal farmers in these districts. In 2018-19, construction of 639 rearing houses were completed and 63 mulberry farmers were trained at Keshla (Madhya Pradesh) on sericulture. During the same year, 31 quintal of cocoon was produced and sold in the market and 15 new nodal centres were established.
- **Behaviour Change Communication (BCC)** : This module was started to promote awareness about right practices in health, nutrition and sanitation. Altogether, till September 2019, a total of 3.19 lakh SHGs received training on topics of Health, Nutrition and Sanitation.
- **Solar Intervention** : Under Solar Urja through Localization for Sustainability (SOULS) initiative, a flagship programme of IIT Bombay, solar study lamps were distributed by the Ministry of New and Renewable Energy (MNRE) and Jeevika. This scheme is part of the programme 'Power to All'. In 2018-19, a total of 12.5 lakh solar lamps were distributed among school going children. In partnership with Tata Energy Research Institute (TERI), solar based home lighting system was provided to 21,500 households.
- **Mukhyamantri Kanya Vivah Yojana** : To stop child marriage and encourage her higher education, Mukhyamantri Kanya Vivah Yojana provides financial assistance of Rs. 5000 to the family of the girl child at the time of her marriage. The benefit of this scheme is given to those girls whose marriage has been registered and whose family income is not more than Rs. 60,000 per annum. In 2018-19, the budget provision for the scheme was of Rs. 4801.40 lakh, of which Rs. 4651.39 lakh was spent.
- **Mukhyamantri Kanya Utthan Yojana** : The main objective of the scheme is to prevent foeticides and gender imbalance by promoting the birth of girl child. Under the scheme, a sum of Rs. 2000 is given at the time of birth and Rs. 1000 on completion of one year along with enrolment in Aadhar. For direct benefit transfer, the Aadhar will be linked with mother/father/guardian's bank account. This facility will be given two girl child in each family. In 2018-19, against the budget outlay of Rs. 9672.18 lakh, the expenditure was almost 100 percent.

- **Mukhyamantri Nari Shakti Yojana** : Under Mukhyamantri Nari Shakti Yojana, free socio-psychological support and legal aid are provided to the victims of domestic violence and trafficked women and adolescents. The Women Development Corporation (WDC) is running 38 Women Help Lines in different districts, in close coordination with respective District Magistrates. In 2018-19, against the budget outlay of Rs. 6617.75 lakh, the expenditure was almost 100 percent. In 2019-20, Rs. 31.98 crore was allotted for the scheme.

Table 11.36 : Number of Cases Registered and Disposed under Social Empowerment (2017-18 to 2019-20)

Types of Cases	2017-18		2018-19		2019-20 (upto Sep-19)	
	Registered	Disposed	Registered	Disposed	Registered	Disposed
Domestic Violence	4021	4113 (102.3)	3985	4418 (110.9)	2011	1726 (85.8)
Dowry Abused	815	698 (85.6)	727	772 (106.2)	367	314 (85.6)
Dowry Death	3	3 (100.0)	2	6 (300.0)	3	3 (100.0)
Second Marriage	107	99 (92.5)	117	152 (129.9)	43	34 (79.1)
Rape & Trafficking Case	3	3 (100.0)	12	6 (50.0)	8	10 (125.0)
Sexual Abuse at Other Places	95	87 (91.6)	90	121 (134.4)	43	41 (95.3)
Sexual Harassment at Workplace Cases	16	7 (43.8)	29	19 (65.5)	16	11 (68.8)
Mobile and Social Media	0	0	4	2 (50.0)	2	1 (50.0)
Others	1357	1444 (106.4)	1268	1564 (123.3)	627	544 (86.8)
Total	6417	6454 (100.6)	6234	7060 (113.2)	3120	2684 (86.0)

Note : Figures in parentheses denote the percentage of cases disposed. In some cases, disposed cases are carried over from the previous years, due to which cases disposed are higher than registered.

Source : Bihar State Women Development Corporation, GoB

In order to safeguard the offences against women, Women Development Corporation has started Mahila Helpline cum One-Stop Centre. The number of Cases against women are registered and disposed off by counselling and in case of court cases, direct cases are filed. Table 11.36 shows that there has been decrease in the number of cases registered and disposed off relating to offences against women. The proportion of cases which were disposed off was very high for most of the offences. Out of all the cases, the registration of cases is the highest for domestic violence. It is interesting to note that more than 100 percent of cases relating to domestic violence were disposed off in 2017-18 and 2018-19. Next to domestic violence were the cases registered under dowry abuse and 85.6 percent of such cases were disposed in 2019-20.

Cultural Empowerment

- **Meena Manch** : It is a group of 20 girls, which includes 15 girls from upper primary schools and 5 dropout girls who have completed at least Class V education. The Manch is responsible for age appropriate admission of girls and boys in the school, ensuring regular attendance of students, and to boost up the students for completing the elementary education. Further, they

are also sensitised for taking decision regarding their upliftment, and personality development, etc. A Meena Prerak is selected from among the Manch girls. A woman teacher in each model cluster school is being selected as Meena Sugamkarta for organising the activities of the Meena Manch.

- **Satyagraha as Swachhagraha** : This mega event was organised as a part of the commemoration of the completion of 100 years of Champaran Satyagraha movement by Mahatma Gandhi. The event was organised in April, 2018 in East Champaran district. The event was attended by 20,000 Swachhagrahis from different parts of the country.
- **Shilpgram Mahila Producer Company Ltd.** : The company has been registered at zonal level covering all nearby districts. The company has started its business from October, 2018 and has made sales of Rs. 35.00 lakh till September, 2019.
- **Didi ki Rasoi** : Under this initiative, the canteens of Sadar hospitals are being run by Jeevika SHG members and Village Organisations (VO) as the nodal agency. In 2018-19, three canteens were inaugurated at Sadar Hospitals at Buxar, Sheikhpura and Vaishali. The canteens provide food service to indoor patients as well as visitors. The total sale of three canteens was of Rs. 14.50 lakh. Till September 2019, twelve Didi ki Rasoi have been started.

11.7 Social Security for Old and Disabled

As per Census 2011, out of the 10.41 crore population in Bihar, 23.3 lakh people are disabled (0.02 percent of the total population) and 60.7 lakh people are old (0.06 percent of the population). In an era where inclusive development is being emphasized, focused initiatives for the welfare of the old and disabled people are essential. Thus, in alliance with the Central Government, the State Government is presently promoting several social security schemes for old age people, widows and the disabled. The total expenditure on the pension schemes has increased from Rs. 98.34 crore in 2005-06 to Rs. 3138.88 crore in 2018-19. Table 11.37 shows the summary of expenditure under these welfare schemes. In 2018-19, the total expenditure on all the schemes was Rs. 3138.88 crore which has benefitted 63.6 lakh people.

Along with the above schemes, other new initiatives taken by the State Government for social security of senior citizens and those suffering from physical disabilities are:

- From 2019-20, a new universal pension scheme for senior citizens named ‘Mukhyamantri Vridhjan Pension Scheme’ has been initiated in April, 2019. Under the scheme, the senior citizen (60 years and above), who has not availed any other social security pension scheme or any government pension scheme, will be benefitted. The amount of pension is Rs. 400 per month for 60-79 years age-group and Rs. 500 for the age group of 80 years and above.

- To make the social security pension schemes easy, simple and transparent, the amount is being directly deposited in the account of the beneficiaries through Direct Benefit Transfer (DBT), since 2016-17. Till September, 2019, approximately 71.00 lakh pensioners, 63.23 lakh pensioners were linked with Public Finance Management System (PFMS) and Aadhar.

Table 11.37 : Schemes for Old Age, Widow and Persons with Disabilities (2017-18 and 2018-19)

Name of the Scheme	2017-18		2018-19	
	Expenditure (Rs. lakh)	Physical Achievement	Expenditure (Rs. lakh)	Physical Achievement
Indira Gandhi National Old Age Pension Scheme	104967.69	4247145	85858.10	4266142
Indira Gandhi National Widow Pension Scheme		541425	18747.97	545480
Indira Gandhi National Disability Pension Scheme		119139	3713.72	119775
National Family Benefit Scheme		0	6990.29	2716
NSAP (State Share)	183707.50	-	118686.41	-
Lakshmibai Social Security Pension Scheme	26046.96	575391	28183.88	581109
Bihar Disability Pension Scheme	31732.18	724303	35200.00	733672
State Social Security Pension Scheme	3000.00	62491	760.00	62531
Kabir Antyesthi Anudan Yojana	4824.00	144333	4830.00	42003
Chief Minister Family Benefit Scheme	500.00	2500	400.00	150
Bihar Shatabdi Leper Welfare Scheme	1260.00	9179	1700.00	9365
Mukhyamantri Bhikshavriti Nivaran Yojana	20.00		755.00	
Old Age Home	1.00		150.00	99
Old Age Home Construction	726.00	2 old age home	100.00	1
Bihar Aids Pirit Kalyan Yojna	1001.00		1000.00	
Bihar Integrated Social Protection Strengthening Projects	11429.00		6800.00	38 Buniyad Centre
Chief Minister Disabled Marriage Grant Scheme	26.00		13.00	13
Total	369241.33	6425906	313888.37	6363056

Note : National Social Assistance Programme (NSAP)

Source : Department of Social Welfare, GoB

- Under Bihar Shatabdi Unorganised Sector Workers and Artisans Social Security Scheme 2011, Bihar State Labour Welfare Society has been formed with the objective to provide social security benefits to the unorganized workers and artisans of Bihar.
- A uniformity is being maintained in all the pension schemes by making the pension amount as Rs. 400 per month for every pensioner since July, 2014. The State Government contributes from its internal resources to the national pension programmes — Rs. 200 in National Old Age Pension, Rs. 100 in National Widow Pension, and Rs. 100 in National Disability Pension Scheme. This contribution implied an expenditure of Rs. 1186.86 crore in 2018-19 by the State Government.
- The State Government has initiated Chief Minister Family Benefit Scheme from 2012-13. This scheme provides one time grant of Rs. 20,000 in case of death, due to either accident or criminal activity. An amount of Rs. 4.00 crore has been spent in 2018-19 under this scheme.
- Land has been provided at Patna, Purnea and Gaya for construction of 3 Old Age Homes. The construction has already been completed in Patna and the construction in Gaya is partially complete. There are already 6 Old Age Homes (SAHARA) in Patna, Begusarai, Rohtas, Purnea, Bhagalpur and West Champaran. These Old Age Homes are being managed by non-government voluntary organizations.

APPENDIX

Table A 11.1 : District-wise Demographic Profile of Bihar (2001 and 2011)

Districts	Population (lakh)		Sex Ratio (Overall)		Sex Ratio (Child)		Density		Urbanisation		Decadal Growth
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2011
Patna	47.2 (5.7)	58.4 (5.6)	873	897	923	909	1471	1803	41.6	43.1	23.7
Nalanda	23.7 (2.9)	28.8 (2.8)	914	922	941	931	1006	1220	14.9	15.9	21.4
Bhojpur	22.4 (2.7)	27.3 (2.6)	901	907	940	918	903	1136	13.9	14.3	21.6
Buxar	14.0 (1.7)	17.1 (1.6)	900	922	929	934	864	1003	9.2	9.6	21.7
Rohtas	24.5 (3.0)	29.6 (2.8)	910	918	952	931	636	763	13.3	14.5	20.8
Kaimur	12.9 (1.6)	16.3 (1.6)	901	920	942	942	382	488	3.3	4	26.2
Gaya	34.7 (4.2)	43.9 (4.2)	938	937	968	960	699	880	13.7	13.2	26.4
Jehanabad	9.2 (1.1)	11.3 (1.1)	927	922	915	922	963	1206	12.1	12	21.7
Arwal	5.9 (0.7)	7.0 (0.7)	931	928	917	940	--	1099	0	7.4	18.9
Nawada	18.1 (2.2)	22.2 (2.1)	946	939	978	945	726	889	7.7	9.7	22.6
Aurangabad	20.1 (2.4)	25.4 (2.4)	934	926	941	944	607	760	8.4	9.3	26.2
Saran	32.5 (3.9)	39.5 (3.8)	966	954	949	926	1231	1493	9.2	8.9	21.6
Siwan	27.1 (3.3)	33.3 (3.2)	1031	988	933	940	1221	1495	5.5	5.5	22.7
Gopalganj	21.5 (2.6)	25.6 (2.5)	1001	1021	964	954	1057	1258	6.1	6.4	19.0
W. Champaran	30.4 (3.7)	39.4 (3.8)	901	909	952	953	582	750	10.2	10	29.3
E. Champaran	39.4 (4.7)	51.0 (4.9)	896	902	935	933	991	1281	6.4	7.9	29.4
Muzaffarpur	37.5 (4.5)	48.0 (4.6)	921	900	927	915	1180	1506	9.3	9.9	28.1
Sitamarhi	26.8 (3.2)	34.2 (3.3)	892	899	924	930	1214	1491	5.7	5.6	27.6
Sheohar	5.2 (0.6)	6.6 (0.6)	883	893	911	929	1161	1882	4.1	4.3	27.2
Vaishali	27.2 (3.3)	35.0 (3.4)	919	895	939	904	1332	1717	6.8	6.7	28.6
Darbhanga	33.0 (4.0)	39.4 (3.8)	914	911	913	931	1442	1721	8.1	9.7	19.5
Madhubani	35.8 (4.3)	44.9 (4.3)	942	926	941	936	1020	1279	3.5	3.6	25.5
Samastipur	33.9 (4.1)	42.6 (4.1)	928	911	937	923	1175	1465	3.7	3.5	25.5
Begusarai	23.5 (2.8)	29.7 (2.9)	911	895	947	919	1222	1540	4.6	19.2	26.4
Munger	11.4 (1.4)	13.7 (1.3)	872	876	916	922	800	958	27.9	27.8	20.2
Sheikhpura	5.3 (0.6)	6.4 (0.6)	920	930	964	940	762	922	15.6	17.1	21.1
Lakhisarai	8.0 (1.0)	10.0 (1.0)	919	902	954	920	652	815	14.7	14.3	24.8
Jamui	14 (1.7)	17.6 (1.7)	919	922	965	956	451	567	7.4	8.3	25.9
Khagaria	12.8 (1.5)	16.7 (1.6)	885	886	931	926	859	1115	5.9	5.2	30.2
Bhagalpur	24.2 (2.9)	30.4 (2.9)	875	880	967	938	946	1180	18.7	19.8	25.4
Banka	16.1 (1.9)	20.3 (2.0)	909	907	964	943	533	672	3.5	3.5	26.5
Saharsa	15.1 (1.8)	19 (1.8)	911	906	910	933	885	1125	8.3	8.2	26
Supaul	17.3 (2.1)	22.3 (2.1)	921	929	927	944	724	919	5.1	4.7	28.7
Madhepura	15.3 (1.8)	20 (1.9)	916	911	930	930	853	1116	4.5	4.4	31.1
Purnea	25.4 (3.1)	32.6 (3.1)	916	921	968	954	787	1014	8.7	10.5	28.3
Kishanganj	13 (1.6)	16.9 (1.6)	934	950	946	971	687	898	10	9.5	30.4
Araria	21.6 (2.6)	28.1 (2.7)	914	921	963	957	751	992	6.2	6	30.2
Katihar	23.9 (2.9)	30.7 (2.9)	919	919	966	961	782	1004	9.2	8.9	28.4
Bihar	830 (100.0)	1041(100.0)	919	918	942	935	880	1106	10.5	11.3	25.4

Source : Census of India

Table A 11.2 : District-wise Projected Population of Bihar in Lakh) (2011 to 2041)

Districts	2011	2019	2021	2031	2041
Patna	58.38	67.10	69.57	79.81	88.25
Nalanda	28.78	32.89	34.06	38.74	42.71
Bhojpur	27.28	31.22	32.34	36.87	40.69
Buxar	17.06	19.49	20.18	22.97	25.36
Rohtas	29.60	33.87	35.08	39.96	44.04
Kaimur	16.26	18.54	19.18	21.73	23.92
Gaya	43.91	50.12	51.88	59.01	65.23
Jehanabad	11.25	12.87	13.32	15.16	16.71
Arwal	7.01	8.00	8.29	9.42	10.38
Nawada	22.19	25.33	26.22	29.71	32.62
Aurangabad	25.40	29.01	30.03	34.10	37.54
Saran	39.52	45.04	46.60	52.84	58.26
Siwan	33.30	37.97	39.29	44.58	49.20
Gopalganj	25.62	29.17	30.17	34.12	37.51
W. Champaran	39.35	44.86	46.42	52.42	57.40
E. Champaran	50.99	58.09	60.10	67.83	74.28
Muzaffarpur	48.01	54.93	56.89	64.86	71.64
Sitamarhi	34.24	39.01	40.37	45.68	50.22
Sheohar	6.56	7.47	7.73	8.75	9.63
Vaishali	34.95	39.97	41.39	47.34	52.59
Darbhanga	39.37	44.94	46.52	52.71	57.91
Madhubani	44.87	51.27	53.08	60.28	66.29
Samastipur	42.62	48.62	50.32	57.01	62.64
Begusarai	29.71	33.90	35.10	39.73	43.58
Munger	13.68	15.69	16.26	18.59	20.52
Sheikhpura	6.36	7.25	7.50	8.48	9.31
Lakhisarai	10.01	11.42	11.82	13.38	14.68
Jamui	17.60	20.14	20.85	23.70	26.06
Khagaria	16.67	18.96	19.62	22.05	24.07
Bhagalpur	30.38	34.73	35.96	40.87	44.97
Banka	20.35	23.28	24.11	27.44	30.24
Saharsa	19.01	21.67	22.43	25.32	27.70
Supaul	22.29	25.42	26.31	29.73	32.55
Madhepura	20.02	22.83	23.62	26.66	29.15
Purnea	32.65	37.15	38.42	43.27	47.34
Kishanganj	16.90	19.20	19.85	22.21	24.13
Araria	28.12	31.99	33.08	37.16	40.50
Katihar	30.71	34.96	36.16	40.66	44.31
Bihar	1040.99	1188.35	1230.11	1395.13	1534.15

Source : Census of India

Table A 11.3 : Projected Total Fertility Rate in Districts of Bihar (2012 to 2041)

(Children per woman)

Districts	2012	2019	2021	2031	2041
Patna	2.60	2.08	1.86	1.49	1.34
Nalanda	3.10	2.47	2.21	1.77	1.59
Bhojpur	3.00	2.39	2.14	1.71	1.54
Buxar	3.20	2.55	2.29	1.83	1.65
Rohtas	3.30	2.63	2.36	1.89	1.70
Kaimur	3.20	2.55	2.29	1.83	1.65
Gaya	3.00	2.39	2.14	1.71	1.54
Jehanabad	3.10	2.47	2.21	1.77	1.59
Nawada	3.10	2.47	2.21	1.77	1.59
Aurangabad	3.10	2.47	2.21	1.77	1.59
Saran	3.20	2.55	2.29	1.83	1.65
Siwan	3.50	2.79	2.50	2.00	1.80
Gopalganj	3.50	2.79	2.50	2.00	1.80
W. Champaran	4.00	3.19	2.86	2.29	2.06
E. Champaran	4.60	3.67	3.29	2.63	2.37
Muzaffarpur	3.40	2.71	2.43	1.94	1.75
Sitamarhi	3.90	3.11	2.79	2.23	2.01
Sheohar	4.60	3.67	3.29	2.63	2.37
Vaishali	3.40	2.71	2.43	1.94	1.75
Darbhanga	3.80	3.03	2.71	2.17	1.95
Madhubani	3.40	2.71	2.43	1.94	1.75
Samastipur	3.80	3.03	2.71	2.17	1.95
Begusarai	3.30	2.63	2.36	1.89	1.70
Munger	3.20	2.55	2.29	1.83	1.65
Sheikhpura	3.60	2.87	2.57	2.06	1.85
Lakhisarai	3.00	2.39	2.14	1.71	1.54
Jamui	3.10	2.47	2.21	1.77	1.59
Khagaria	4.20	3.35	3.00	2.40	2.16
Bhagalpur	3.30	2.63	2.36	1.89	1.70
Banka	3.20	2.55	2.29	1.83	1.65
Saharsa	4.30	3.43	3.07	2.46	2.21
Supaul	3.80	3.03	2.71	2.17	1.95
Madhepura	4.00	3.19	2.86	2.29	2.06
Purnia	3.70	2.95	2.64	2.11	1.90
Kishanganj	4.40	3.51	3.14	2.51	2.26
Araria	4.30	3.43	3.07	2.46	2.21
Katihar	3.90	3.11	2.79	2.23	2.01
Bihar	3.50	2.79	2.50	2.00	1.80

Source : Census of India

Table A 11.4 : District-wise Projected Population of Bihar by Age Structure (in Lakh) (2021 to 2041)

Districts	0-19 years			20-59 years			60 years and above		
	2021	2031	2041	2021	2031	2041	2021	2031	2041
Patna	27.91	25.51	24.10	36.31	47.07	54.02	5.35	7.23	10.13
Nalanda	14.53	13.28	12.55	16.79	21.76	24.97	2.74	3.70	5.19
Bhojpur	13.59	12.42	11.74	16.13	20.91	24.00	2.62	3.53	4.95
Buxar	8.60	7.86	7.43	9.85	12.76	14.65	1.74	2.35	3.29
Rohtas	14.82	13.54	12.80	17.55	22.75	26.10	2.72	3.67	5.14
Kaimur	8.42	7.70	7.27	9.18	11.89	13.65	1.58	2.14	2.99
Gaya	22.21	20.30	19.18	24.95	32.34	37.12	4.72	6.37	8.93
Jehanabad	5.67	5.18	4.89	6.60	8.55	9.81	1.06	1.43	2.00
Arwal	3.56	3.26	3.08	4.04	5.24	6.02	0.68	0.92	1.29
Nawada	11.47	10.48	9.90	12.86	16.67	19.13	1.89	2.56	3.59
Aurangabad	12.97	11.85	11.20	14.69	19.04	21.85	2.37	3.21	4.49
Saran	20.38	18.62	17.60	22.14	28.70	32.94	4.08	5.51	7.72
Siwan	17.09	15.62	14.76	18.70	24.24	27.82	3.49	4.72	6.61
Gopalganj	13.43	12.27	11.60	14.26	18.49	21.22	2.48	3.36	4.70
W. Champaran	20.73	18.95	17.90	22.52	29.19	33.50	3.17	4.28	6.00
E. Champaran	26.97	24.65	23.29	28.93	37.49	43.03	4.21	5.68	7.96
Muzaffarpur	23.90	21.84	20.64	28.23	36.59	41.99	4.76	6.44	9.02
Sitamarhi	17.84	16.30	15.40	19.31	25.02	28.72	3.22	4.36	6.10
Sheohar	3.42	3.13	2.96	3.64	4.72	5.41	0.67	0.90	1.26
Vaishali	17.10	15.63	14.77	20.12	26.08	29.93	4.17	5.63	7.90
Darbhangha	20.33	18.58	17.56	22.73	29.46	33.81	3.45	4.67	6.54
Madhubani	22.90	20.93	19.77	26.21	33.97	38.98	3.98	5.38	7.54
Samastipur	22.05	20.15	19.04	24.46	31.71	36.39	3.81	5.15	7.21
Begusarai	15.42	14.09	13.31	17.22	22.32	25.62	2.45	3.32	4.65
Munger	6.68	6.11	5.77	8.36	10.83	12.43	1.23	1.66	2.32
Sheikhpura	3.33	3.05	2.88	3.59	4.65	5.34	0.58	0.78	1.09
Lakhisarai	5.20	4.75	4.49	5.76	7.47	8.57	0.86	1.16	1.62
Jamui	8.92	8.15	7.70	10.43	13.52	15.52	1.50	2.03	2.84
Khagaria	9.00	8.22	7.77	9.37	12.14	13.93	1.25	1.69	2.37
Bhagalpur	15.42	14.09	13.31	17.84	23.13	26.54	2.70	3.65	5.11
Banka	10.22	9.34	8.83	12.03	15.59	17.89	1.86	2.51	3.52
Saharsa	10.02	9.16	8.66	10.93	14.17	16.26	1.47	1.99	2.79
Supaul	11.70	10.69	10.10	12.86	16.67	19.14	1.75	2.36	3.31
Madhepura	10.57	9.66	9.13	11.54	14.96	17.17	1.51	2.03	2.85
Purnia	17.47	15.97	15.09	18.27	23.68	27.17	2.68	3.62	5.08
Kishanganj	9.36	8.56	8.08	9.38	12.16	13.95	1.11	1.50	2.10
Araria	15.26	13.95	13.18	15.84	20.53	23.56	1.98	2.68	3.76
Katihar	16.58	15.16	14.32	17.45	22.62	25.96	2.13	2.88	4.03
Bihar	535.04	489.04	462.04	601.07	779.09	894.10	94.01	127.01	178.01

Source : Census of India

Table A 11.5 : District-wise Projected Population of Bihar by Age Structure (in percent) (2021 to 2041)

Districts	0-19 years			20-59 years			60 years and above		
	2021	2031	2041	2021	2031	2041	2021	2031	2041
Patna	40.12	31.97	27.31	52.19	58.98	61.21	7.69	9.05	11.48
Nalanda	42.66	34.28	29.38	49.29	56.16	58.47	8.04	9.55	12.15
Bhojpur	42.03	33.70	28.85	49.88	56.72	58.98	8.09	9.59	12.17
Buxar	42.61	34.22	29.28	48.79	55.56	57.75	8.60	10.21	12.96
Rohtas	42.24	33.89	29.05	50.02	56.92	59.27	7.74	9.18	11.68
Kaimur	43.92	35.43	30.41	47.84	54.74	57.07	8.24	9.83	12.52
Gaya	42.81	34.40	29.40	48.10	54.81	56.91	9.09	10.80	13.69
Jehanabad	42.54	34.17	29.29	49.52	56.40	58.72	7.94	9.43	11.99
Arwal	43.00	34.58	29.64	48.80	55.67	57.96	8.20	9.75	12.40
Nawada	43.73	35.28	30.36	49.04	56.10	58.64	7.22	8.61	11.00
Aurangabad	43.18	34.76	29.83	48.92	55.84	58.21	7.90	9.40	11.97
Saran	43.73	35.25	30.20	47.52	54.32	56.54	8.75	10.43	13.26
Siwan	43.50	35.03	30.00	47.61	54.38	56.56	8.89	10.59	13.45
Gopalganj	44.50	35.98	30.91	47.27	54.19	56.55	8.23	9.83	12.54
W. Champaran	44.66	36.15	31.19	48.51	55.69	58.36	6.83	8.17	10.45
E. Champaran	44.88	36.35	31.36	48.13	55.28	57.93	7.00	8.38	10.72
Muzaffarpur	42.01	33.67	28.80	49.62	56.40	58.60	8.38	9.92	12.59
Sitamarhi	44.19	35.69	30.67	47.83	54.78	57.18	7.99	9.53	12.15
Sheohar	44.30	35.78	30.70	47.07	53.92	56.19	8.63	10.30	13.11
Vaishali	41.31	33.01	28.08	48.61	55.09	56.91	10.07	11.90	15.01
Darbhanga	43.71	35.25	30.32	48.87	55.89	58.39	7.43	8.85	11.29
Madhubani	43.13	34.72	29.83	49.37	56.36	58.80	7.50	8.92	11.37
Samastipur	43.82	35.35	30.40	48.61	55.62	58.09	7.57	9.03	11.51
Begusarai	43.93	35.47	30.55	49.07	56.19	58.78	6.99	8.35	10.67
Munger	41.09	32.85	28.12	51.38	58.25	60.57	7.54	8.91	11.31
Sheikhpura	44.44	35.93	30.91	47.86	54.87	57.35	7.69	9.20	11.74
Lakhisarai	44.01	35.54	30.59	48.73	55.80	58.35	7.25	8.66	11.06
Jamui	42.77	34.39	29.55	50.04	57.06	59.55	7.20	8.56	10.90
Khagaria	45.87	37.29	32.28	47.75	55.05	57.88	6.38	7.67	9.85
Bhagalpur	42.88	34.48	29.61	49.62	56.59	59.02	7.51	8.92	11.37
Banka	42.40	34.05	29.20	49.88	56.80	59.16	7.71	9.16	11.65
Saharsa	44.70	36.19	31.25	48.74	55.96	58.69	6.56	7.85	10.05
Supaul	44.46	35.97	31.04	48.89	56.09	58.79	6.64	7.95	10.17
Madhepura	44.76	36.25	31.32	48.87	56.12	58.90	6.38	7.63	9.78
Purnia	45.47	36.90	31.87	47.55	54.72	57.40	6.98	8.38	10.73
Kishanganj	47.17	38.53	33.50	47.25	54.73	57.81	5.58	6.74	8.69
Araria	46.12	37.53	32.54	47.89	55.26	58.19	6.00	7.21	9.27
Katihar	45.85	37.28	32.32	48.26	55.65	58.59	5.88	7.07	9.09
Bihar	43.50	35.05	30.12	48.86	55.84	58.28	7.64	9.10	11.60

Source : Census of India

Table A 11.6 : Number of Health Institutions in Bihar (As on September, 2019)

Districts	District Hospital	Referral Hospital	SDH	PHC	Health Sub-Centre	APHC	DH+RH+SDH+PHC+HSC+APHC	Health Institution per ten lakh population
Patna	1	4	4	23	234	96	362	62
Nalanda	1	3	2	20	368	46	440	153
Bhojpur	1	3	1	14	298	27	344	126
Buxar	1	0	1	11	160	28	201	118
Rohtas	1	2	2	19	251	32	307	104
Kaimur	1	2	1	11	175	19	209	129
Gaya	1	2	2	24	469	42	536	122
Jehanabad	1	2	0	7	107	34	151	134
Arwal	1	0	0	5	65	28	98	140
Nawada	1	2	1	14	174	36	228	103
Aurangabad	1	3	1	11	254	62	331	130
Saran	1	3	1	20	414	41	480	121
Siwan	1	3	1	19	378	44	446	134
Gopalganj	1	3	1	14	185	24	228	89
W. Champaran	1	2	2	18	532	33	588	149
E. Champaran	1	1	3	27	398	72	500	98
Muzaffarpur	1	1	0	16	499	83	600	125
Sitamarhi	1	1	1	17	208	38	266	78
Sheohar	1	1	0	5	91	13	111	169
Vaishali	1	4	1	16	334	35	391	112
Darbhanga	0	2	1	18	261	50	328	83
Madhubani	1	3	3	21	376	61	465	104
Samastipur	1	1	4	20	358	56	440	103
Begusarai	1	2	2	18	292	23	338	114
Munger	1	0	1	9	154	20	185	135
Sheikhpura	1	1	0	6	85	17	110	173
Lakhisarai	1	1	0	6	102	12	122	122
Jamui	1	3	0	10	279	22	315	179
Khagaria	1	1	0	7	186	23	218	131
Bhagalpur	1	3	2	16	362	54	438	144
Banka	1	3	0	11	239	31	285	140
Saharsa	1	0	1	10	171	32	215	113
Supaul	1	2	1	11	181	23	219	98
Madhepura	1	0	1	13	272	21	308	154
Purnea	1	2	2	14	312	33	364	111
Kishanganj	1	1	0	7	156	10	175	104
Araria	1	2	1	9	242	37	284	101
Katihar	1	1	2	16	327	41	388	126
Bihar	37	70	46	533	9949	1399	12014	115

Source : Bihar State Health Society, Patna; GoB

Table A 11.7 : District-wise Average Number of Outpatients Visiting per Day and In-patient Bed Occupancy Rate (2016-17 to 2019-20)

District	Average no. of Outpatient visits per day per hospital				In-patient Bed Occupancy Rate (%)			
	2016-17	2017-18	2018-19	2019-20	2016-17	2017-18	2018-19	2019-20
Patna	269	382	355	366	74	34	44	43
Nalanda	448	290	333	335	121	83	82	82
Bhojpur	254	244	244	271	41	33	37	35
Buxar	219	186	168	167	50	27	31	33
Rohtas	259	237	248	259	66	53	37	35
Kaimur	297	254	280	295	54	62	75	75
Gaya	355	346	386	361	23	41	40	41
Jehanabad	354	343	341	347	44	45	31	31
Arwal	263	264	241	229	24	48	55	53
Nawada	180	199	206	220	85	28	26	28
Aurangabad	524	425	388	399	48	33	43	45
Saran	462	349	392	406	88	48	58	72
Siwan	326	286	270	257	73	59	61	59
Gopalganj	382	266	251	223	67	54	52	39
W.Champaran	275	173	231	239	41	50	66	58
E.Champaran	398	268	260	285	74	50	50	53
Muzaffarpur	514	493	515	544	18	27	30	32
Sitamarhi	217	269	246	228	81	47	44	39
Sheohar	148	145	147	139	48	27	23	14
Vaishali	432	395	420	332	93	69	68	37
Darbhanga	343	410	459	485	38	54	56	53
Madhubani	344	388	400	420	52	74	76	73
Samastipur	363	313	272	320	118	73	80	73
Begusarai	267	241	286	316	69	67	70	81
Munger	340	315	302	296	81	47	50	48
Sheikhpura	160	237	232	229	66	40	34	42
Lakhisarai	247	224	204	227	70	41	50	46
Jamui	217	242	180	176	36	43	35	32
Khagaria	555	489	472	505	108	116	111	113
Bhagalpur	318	278	260	258	126	44	48	47
Banka	440	322	307	305	65	53	55	45
Saharsa	207	258	253	258	87	86	90	85
Supaul	375	282	298	293	80	68	78	62
Madhepura	392	449	411	405	126	96	88	82
Purnea	467	343	317	356	90	70	69	70
Kishanganj	295	228	244	248	94	51	58	35
Araria	480	352	329	319	147	28	30	28
Katihar	364	335	338	348	81	78	81	74
Bihar	339	309	311	317	64	53	55	53

Source : Bihar State Health Society, Patna; GoB

Table A 11.8 : District-wise Employment of Regular and Contractual Doctors (2017-18 and 2018-19)

(Figures in No.)

Districts	No. of sanctioned post at present		Number of Doctors Employed				No. of doctors/lakh population*
	Regular	Contractual	Regular		Contractual		
			2017-18	2018-19	2017-18	2018-19	
Patna	422	92	376	349	4	25	6
Nalanda	158	95	169	169	4	20	6
Bhojpur	194	65	125	124	2	14	4
Buxar	115	54	77	75	2	9	4
Rohtas	248	89	97	97	3	19	3
Kaimur	114	48	58	55	2	8	3
Gaya	272	106	212	207	3	31	5
Jehanabad	150	46	97	96	1	7	8
Arwal	80	20	42	42	1	13	7
Nawada	198	45	86	83	2	8	4
Aurangabad	97	47	66	65	2	14	3
Saran	165	94	111	110	2	17	3
Siwan	162	10	81	80	2	28	3
Gopalganj	101	69	71	67	2	13	3
W. Champaran	132	83	153	151	3	18	4
E. Champaran	190	128	96	93	4	15	2
Muzaffarpur	274	64	218	211	1	18	4
Sitamarhi	170	68	69	67	2	16	2
Sheohar	75	19	44	42	1	2	6
Vaishali	145	69	122	120	2	15	3
Darbhangha	190	72	167	159	1	42	4
Madhubani	235	85	93	91	4	18	2
Samastipur	192	95	112	111	5	19	3
Begusarai	122	94	81	78	3	27	3
Munger	110	44	75	74	2	5	5
Sheikhpura	93	24	65	65	1	4	9
Lakhisarai	114	30	52	52	1	4	5
Jamui	103	38	61	58	1	13	3
Khagaria	101	44	57	57	1	3	3
Bhagalpur	206	64	182	182	3	15	6
Banka	118	47	67	64	1	6	3
Saharsa	163	45	64	63	2	12	3
Supaul	182	48	82	80	2	8	3
Madhepura	190	67	66	65	2	14	3
Purnea	226	64	120	119	3	8	3
Kishanganj	83	28	49	49	1	3	3
Araria	179	36	64	63	2	15	2
Katihar	192	78	94	90	3	5	3
Bihar	6261	2314	3921	3821	83	531	4

Source : Bihar State Health Society, Patna; GoB

Table A 11.9 : District-wise Employment of Grade A Nurses (2017-18 and 2018-19)

(Figures in No.)

District	No. of sanctioned post at present		Number of Grade A Nurses Employed				No. of Grade A Nurses/lakh population
	Regular	Contractual	Regular		Contractual		
			2017-18	2018-19	2017-18	2018-19	
Patna	161	46	130	130	44	44	3
Nalanda	88	59	97	97	12	12	3
Bhojpur	54	24	50	50	8	8	2
Buxar	53	74	39	39	0	0	2
Rohtas	88	20	55	55	16	16	2
Kaimur	38	44	26	26	9	9	2
Gaya	146	25	27	27	15	15	1
Jehanabad	85	34	76	76	1	1	6
Arwal	81	50	17	17	2	2	2
Nawada	82	175	73	73	0	0	3
Aurangabad	128	22	28	28	0	0	1
Saran	86	25	46	46	6	6	1
Siwan	110	16	34	34	0	0	1
Gopalganj	84	18	29	29	2	2	1
W. Champaran	120	37	24	24	2	2	1
E. Champaran	165	48	36	36	11	11	1
Muzaffarpur	152	54	37	37	12	12	1
Sitamarhi	116	17	29	29	2	2	1
Sheohar	34	9	9	9	3	3	2
Vaishali	118	51	64	64	0	0	2
Darbhanga	154	30	27	27	10	10	1
Madhubani	114	34	54	54	2	2	1
Samastipur	146	24	133	133	1	1	3
Begusarai	128	24	120	120	8	8	4
Munger	114	34	100	100	9	9	7
Sheikhpura	56	32	44	44	30	30	10
Lakhisarai	58	60	52	52	1	1	5
Jamui	62	13	38	38	4	4	2
Khagaria	48	13	60	60	2	2	3
Bhagalpur	108	165	78	78	24	24	3
Banka	64	18	58	58	0	0	2
Saharsa	52	30	46	46	4	4	2
Supaul	107	172	39	39	1	1	2
Madhepura	58	9	30	30	1	1	1
Purnea	110	112	76	76	12	12	2
Kishanganj	44	34	23	23	42	42	3
Araria	96	39	24	24	4	4	1
Katihar	104	28	66	66	8	8	2
Bihar	3612	1719	1994	1994	308	308	2

Source : Bihar State Health Society, Patna; GoB

Table A 11.10 : District-wise Employment of ANM (2017-18 and 2018-19)

(Figures in No.)

District	No. of sanctioned post currently		Number of ANM Employed				No. of ANM/lakh population
	Regular	Contractual	Regular		Contractual		
			2017-18	2018-19	2017-18	2018-19	
Patna	1155	418	968	968	196	196	17
Nalanda	835	370	711	711	158	158	26
Bhojpur	706	350	622	622	147	147	24
Buxar	382	162	199	199	91	91	15
Rohtas	593	308	394	394	113	113	15
Kaimur	325	287	242	242	110	110	19
Gaya	1170	541	587	587	287	287	17
Jehanabad	351	151	178	178	73	73	19
Arwal	125	65	76	76	39	39	14
Nawada	443	525	217	217	102	102	12
Aurangabad	581	308	328	328	156	156	16
Saran	789	643	297	297	266	266	12
Siwan	501	370	325	325	97	97	11
Gopalganj	512	186	191	191	79	79	9
W. Champaran	535	895	277	277	546	546	18
E. Champaran	1017	503	201	201	401	401	10
Muzaffarpur	956	583	674	674	238	238	16
Sitamarhi	684	213	207	207	99	99	8
Sheohar	97	172	25	25	98	98	16
Vaishali	764	418	411	411	181	181	15
Darbhanga	585	419	284	284	202	202	11
Madhubani	1017	702	307	307	225	225	10
Samastipur	854	486	545	545	57	57	12
Begusarai	661	360	475	475	196	196	20
Munger	491	165	324	324	70	70	25
Sheikhpura	257	123	148	148	49	49	27
Lakhisarai	400	102	205	205	54	54	22
Jamui	609	212	230	230	129	129	18
Khagaria	362	193	216	216	89	89	16
Bhagalpur	567	362	622	622	165	165	22
Banka	406	265	348	348	137	137	21
Saharsa	350	212	140	140	119	119	12
Supaul	212	246	87	87	157	157	9
Madhepura	399	153	93	93	82	82	8
Purnea	655	370	207	207	179	179	10
Kishanganj	338	186	69	69	117	117	10
Araria	561	290	129	129	161	161	9
Katihar	614	345	271	271	224	224	14
Bihar	21859	12659	11830	11830	5889	5889	15

Source : Bihar State Health Society, Patna; GoB

Table A 11.11 : District-wise Employment of ASHA Worker (2016-17 to 2018-19)

(Figures in No.)

District	2016-17		2017-18		2018-19	
	Target	Selection	Target	Selection	Target	Selection
Patna	3461	2992	3461	2992	3461	3111
Nalanda	2415	2316	2415	2316	2415	2316
Bhojpur	2331	2079	2331	2079	2331	2204
Buxar	1551	1494	1551	1494	1551	1494
Rohtas	2538	2465	2538	2465	2538	2509
Kaimur	1570	1509	1570	1509	1570	1568
Gaya	3878	3448	3878	3448	3878	3680
Jehanabad	990	870	990	870	990	960
Arwal	749	747	749	747	749	712
Nawada	2004	1957	2004	1957	2004	1931
Aurangabad	2299	2243	2299	2243	2299	2299
Saran	3602	3408	3602	3408	3602	3450
Siwan	3136	2822	3136	2822	3136	2885
Gopalganj	2396	2395	2396	2395	2396	2392
W. Champaran	3644	3178	3644	3178	3644	3452
E. Champaran	4684	4060	4684	4060	4684	4412
Muzaffarpur	4510	3880	4510	3880	4510	3896
Sitamarhi	3259	2919	3259	2919	3259	2985
Sheohar	646	572	646	572	646	572
Vaishali	3265	3129	3265	3129	3265	3246
Darbhanga	3729	3242	3729	3242	3729	3323
Madhubani	4298	3910	4298	3910	4298	4000
Samastipur	4161	3798	4161	3798	4161	4075
Begusarai	2493	2410	2493	2410	2493	2410
Munger	1014	953	1014	953	1014	968
Sheikhpura	526	478	526	478	526	506
Lakhisarai	900	898	900	898	900	898
Jamui	1654	1509	1654	1509	1654	1583
Khagaria	1571	1501	1571	1501	1571	1526
Bhagalpur	2435	2236	2435	2236	2435	2338
Banka	1966	1819	1966	1819	1966	1820
Saharsa	1823	1471	1823	1471	1823	1646
Supaul	2140	2111	2140	2111	2140	2111
Madhepura	2049	1704	2049	1704	2049	1764
Purnea	2983	2833	2983	2833	2983	2966
Kishanganj	1585	1298	1585	1298	1585	1389
Araria	2637	2284	2637	2284	2637	2476
Katihar	2795	2770	2795	2770	2795	2791
Bihar	93687	85708	93687	85708	93687	88664

Source : Bihar State Health Society, Patna; GoB

Table A 11.12 : District-wise Coverage of Institutional Deliveries under Janani Suraksha Yojana (JSY) (2014-15 to 2019-20)

(Figures in '000)

District	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20, (Sept. 2019)
Patna	83	64	64	64	60	29
Nalanda	41	41	39	44	42	21
Bhojpur	39	38	36	39	37	19
Buxar	25	21	21	22	21	10
Rohtas	43	27	26	29	25	12
Kaimur	23	24	24	25	23	12
Gaya	63	49	47	51	50	25
Jehanabad	16	16	14	14	14	07
Arwal	10	09	09	10	10	05
Nawada	32	30	28	33	31	16
Aurangabad	36	33	31	33	33	16
Saran	57	48	50	53	50	27
Siwan	48	39	40	42	40	20
Gopalganj	37	38	38	40	37	18
W. Champaran	57	67	68	70	73	34
E. Champaran	73	62	62	67	65	32
Muzaffarpur	69	54	53	54	55	29
Sitamarhi	49	43	45	49	49	23
Sheohar	09	09	10	11	11	06
Vaishali	50	60	60	61	61	32
Darbhanga	57	48	50	53	56	26
Madhubani	65	54	59	60	59	29
Samastipur	61	88	89	94	88	45
Begusarai	43	55	54	57	52	28
Munger	20	21	21	22	22	11
Sheikhpura	9	13	12	14	13	07
Lakhisarai	14	16	15	16	15	07
Jamui	25	27	27	29	28	14
Khagaria	24	34	35	38	38	19
Bhagalpur	44	52	51	54	53	26
Banka	29	35	33	36	36	18
Saharsa	27	40	40	39	41	21
Supaul	32	46	47	48	50	24
Madhepura	29	37	42	47	47	23
Purnea	47	71	71	78	74	38
Kishanganj	24	21	23	25	26	12
Araria	40	51	54	55	55	26
Katihar	44	52	57	61	61	30
Bihar	1494	1533	1545	1637	1601	797

Source : Bihar State Health Society, Patna; GoB

Table A 11.13 : Prevalence of Diseases (2018-19)

(Figures in No.)

District	Acute Diarrhoeal Disease (including acute Gastro-enteritis)	Bacillary Dysentery	Viral Hepatitis	Enteric Fever	Malaria
Patna	7627	1059	2563	1365	146
Nalanda	6890	3355	6029	1610	2583
Bhojpur	9748	5030	10	575	13
Buxar	3247	1771	0	3785	563
Rohtas	6326	1405	147	3726	253
Kaimur	5557	3085	58	14312	244
Gaya	0	0	0	0	0
Jehanabad	8429	5795	136	2811	75
Arwal	2154	2087	0	2664	0
Nawada	8516	4590	4522	3138	4937
Aurangabad	2999	1377	0	1244	98
Saran	3204	1140	7	604	0
Siwan	6421	2263	3	9535	25
Gopalganj	6830	557	4	592	6
W. Champaran	14695	1829	0	0	0
E. Champaran	0	0	0	0	0
Muzaffarpur	20472	4241	648	16286	128
Sitamarhi	4681	3268	0	1147	0
Sheohar	7654	3904	0	2449	0
Vaishali	23069	19005	8707	14933	823
Darbhangha	8190	5210	37	4586	491
Madhubani	17528	10974	1186	8458	693
Samastipur	25411	14437	0	1254	519
Begusarai	17181	2004	2	14076	1
Munger	14941	10271	16	1800	3383
Sheikhpura	485	387	0	126	393
Lakhisarai	44	29	0	13	0
Jamui	11365	14398	14	5785	272
Khagaria	1436	902	0	64	5
Bhagalpur	1105	763	0	22	0
Banka	0	0	0	0	0
Saharsa	531	324	0	117	0
Supaul	8677	6635	0	5365	143
Madhepura	1333	0	0	116	0
Purnea	32178	14936	83	2435	409
Kishanganj	22155	7258	18	7921	15
Araria	3494	5828	3317	1309	1930
Katihar	13248	6096	0	4145	172
Bihar	327821	166213	27507	138368	18320

Source : Bihar State Health Society, Patna; GoB

(Contd.)

Table A 11.13 : Prevalence of Diseases (2018-19) (Contd.)

(Figures in No.)

District	Fever of Unknown origin	Acute Respiratory Infection / Influenza like Illness	Pneumonia	Dog bite	Any other State Specific Disease	Unusual Syndromes Not Captured Above
Patna	2824	7404	1952	14456	1327	7315
Nalanda	6862	13398	734	12535	4848	261
Bhojpur	11617	62233	56	26845	748	0
Buxar	4517	24065	106	4722	0	0
Rohtas	15657	25108	410	9233	0	0
Kaimur	13377	9786	608	3051	105	1759
Gaya	0	0	0	0	0	0
Jehanabad	20276	51099	840	14404	0	39
Arwal	8223	7407	253	6348	0	0
Nawada	25456	5112	1729	12081	3930	20221
Aurangabad	699	3356	515	4135	429	2
Saran	8243	6177	315	1348	0	3828
Siwan	48701	81615	1543	14764	370	0
Gopalganj	32731	34622	369	10195	246	0
W. Champaran	2393	18821	822	2472	0	0
E. Champaran	0	0	0	0	0	0
Muzaffarpur	37267	16852	1355	26744	0	0
Sitamarhi	3314	7049	255	3204	41	0
Sheohar	6617	4727	0	2452	0	0
Vaishali	71445	75645	1073	17152	0	1910
Darbhanga	7328	39584	311	11642	227	3736
Madhubani	21843	38743	208	11199	1228	0
Samastipur	77318	73338	129	5219	1002	0
Begusarai	32020	31317	719	13052	0	799
Munger	32172	50980	884	9563	323	1828
Sheikhpura	2648	2083	152	888	0	0
Lakhisarai	25	207	0	213	63	28
Jamui	106579	105303	1192	3997	0	0
Khagaria	72333	79264	10	5457	0	0
Bhagalpur	38374	8183	0	6037	0	0
Banka	0	0	0	0	0	0
Saharsa	820	2296	0	136	0	0
Supaul	21880	9180	26	4839	1839	9191
Madhepura	2582	1897	2	824	0	0
Purnea	52087	56431	567	8506	465	2916
Kishanganj	17240	23377	0	2974	499	0
Araria	4105	10380	466	6278	459	83
Katihar	9378	16760	3	5445	2413	2560
Bihar	818951	1003799	17604	282410	20562	56476

Source : State Health Society, Patna, GoB

(Concluded)

Table A 11.14 : District-wise Fund Disbursed to Health Societies (2013-14 to 2018-19)

(Rs. crore)

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Patna	40.36	52.93	39.93	55.50	55.03	60.65
Nalanda	29.63	37.80	32.37	35.07	32.87	50.47
Bhojpur	20.58	26.48	27.15	28.51	22.38	41.17
Buxar	13.83	18.60	17.63	18.55	20.60	29.11
Rohtas	19.33	19.24	23.72	32.94	24.39	24.47
Kaimur	17.04	18.60	20.79	23.31	22.84	26.66
Gaya	44.60	40.57	41.18	48.20	52.89	54.08
Jehanabad	13.30	15.36	11.74	16.24	13.96	22.43
Arwal	9.21	8.29	9.16	12.30	9.78	19.71
Nawada	17.43	20.49	19.09	27.82	19.58	26.41
Aurangabad	25.94	27.33	22.89	31.92	32.10	29.59
Saran	28.52	26.50	30.69	44.76	45.52	43.35
Siwan	27.21	25.38	32.85	30.22	28.81	36.64
Gopalganj	25.21	24.10	20.63	31.87	20.60	33.07
W. Champaran	37.13	38.35	51.11	54.83	44.71	615.20
E. Champaran	38.22	55.56	34.14	61.28	45.01	59.96
Muzaffarpur	34.45	28.48	33.81	42.00	25.85	50.60
Sitamarhi	25.07	21.51	26.21	39.54	27.87	56.16
Sheohar	6.46	7.80	7.20	10.46	8.53	20.73
Vaishali	40.12	34.51	39.25	49.79	35.70	59.33
Darbhanga	31.13	29.21	24.66	39.08	41.65	45.19
Madhubani	35.30	30.91	36.03	45.03	34.82	60.33
Samastipur	47.15	38.73	56.85	51.96	54.54	58.85
Begusarai	32.33	35.52	32.36	41.95	41.93	51.47
Munger	19.45	15.13	17.12	19.41	17.72	23.87
Sheikhpura	8.15	9.66	11.41	11.36	12.23	22.75
Lakhisarai	10.46	11.88	13.62	13.21	14.71	19.78
Jamui	16.22	24.51	20.91	27.18	24.21	28.00
Khagaria	17.54	23.22	19.86	24.82	19.69	27.38
Bhagalpur	33.27	32.67	37.30	37.20	39.76	41.23
Banka	23.22	25.95	24.30	27.02	32.06	27.06
Saharsa	20.94	19.62	24.10	27.26	18.57	33.50
Supaul	18.58	21.55	26.89	30.63	23.29	30.29
Madhepura	19.52	22.64	19.74	27.18	34.31	29.74
Purnea	33.93	44.15	39.23	47.76	39.47	62.73
Kishanganj	9.66	14.05	13.27	21.74	13.47	265.91
Araria	19.72	27.26	27.97	39.74	41.21	37.80
Katihar	31.31	27.43	40.96	45.31	37.22	59.39
Bihar	941.53	1001.97	1028.14	1272.96	1129.92	1495.05

Note : The Fund has been disbursed by SHS to its implementing Agencies like DHS, RPMU, Medical Colleges, IGIMS and BMSICL, but the above table shows only fund disbursed to DHS

Source : State Health Society, Patna, GoB

Table A 11.15 : District-wise Hand Pumps under National Rural Drinking Water Programme (NRDWP) (2015-16 to 2018-19)

District	Number of Handpumps Installed				Slipped back Habitations / Water quality Problems Covered			Wards Covered
	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19
Patna	1000	220	98	156	373	0	0	861
Nalanda	1079	137	182	344	36	2	0	1083
Bhojpur	669	82	4	45	244	0	0	672
Buxar	389	30	287	71	13	1	0	586
Rohtas	1066	19	250	125	253	1	0	191
Kaimur	761	58	302	111	91	38	15	364
Gaya	1739	148	0	265	469	34	46	673
Jehanabad	206	0	186	60	87	7	25	219
Arwal	196	0	52	49	92	13	0	335
Nawada	856	19	0	165	207	35	19	966
Aurangabad	994	0	366	123	250	37	27	388
Saran	771	34	291	81	305	15	30	1409
Siwan	736	441	300	35	337	15	0	885
Gopalganj	497	74	234	35	269	11	0	664
W. Champaran	871	359	340	20	311	3	13	679
E. Champaran	968	314	375	167	492	20	0	2047
Muzaffarpur	1179	782	475	405	222	5	0	1007
Sitamarhi	1113	140	303	75	21	14	23	2236
Sheohar	106	35	88	30	108	0	0	183
Vaishali	255	414	307	132	0	0	0	721
Darbhanga	588	339	410	145	0	5	0	911
Madhubani	762	303	610	63	167	0	0	729
Samastipur	937	237	431	250	336	96	0	1075
Begusarai	695	54	4	0	58	0	0	08
Munger	453	78	376	83	301	38	25	200
Sheikhpura	230	0	86	70	0	0	0	61
Lakhisarai	485	12	133	75	174	122	0	145
Jamui	700	51	306	120	250	43	23	217
Khagaria	273	32	129	0	14	56	0	0
Bhagalpur	1346	84	430	120	223	2	0	354
Banka	1132	112	360	120	281	0	0	370
Saharsa	232	69	168	0	311	101	0	36
Supaul	458	552	91	33	358	163	0	0
Madhepura	551	13	50	3	132	72	NA	7
Purnea	575	509	246	0	9	57	20	0
Kishanganj	437	252	126	0	84	90	0	0
Araria	480	170	218	96	71	132	0	3
Katihar	906	200	285	0	240	61	0	5
Bihar	26691	6373	8899	3672	7189	1289	266	20290

Note : 1. A habitation having status "Fully Covered" at one point of time but which is 'Partially Covered' or 'Quality Affected'

2. 'Wards Covered' refer to Saat Nischay scheme of 'Har Ghar Nal Ka Jal'

Source : Department of Public Health Engineering, and Panchayati Raj Department, GoB

Table A 11.16 : District-wise Achievement in Individual Household Lantrine (IHHL) under Central Rural Sanitation Programme (2017-18 and 2018-19)

Districts	Popu- lation Share	2017-18			2018-19		
		BPL	APL	BPL+APL	BPL	APL	BPL+APL
Patna	5.6	48197	46565	94762 (2.8)	83544	95032	178576 (2.9)
Nalanda	2.8	94350	39371	133721 (3.9)	66154	25774	91928 (1.5)
Bhojpur	2.6	35995	17032	53027 (1.5)	96487	41867	138354 (2.3)
Buxar	1.6	37760	29423	67183 (2.0)	31470	54009	85479 (1.4)
Rohtas	2.9	143551	79736	223287 (6.5)	4101	1716	5817 (0.1)
Kaimur	1.6	91600	25933	117533 (3.4)	83939	43440	127379 (2.1)
Gaya	4.2	31998	51654	83652 (2.4)	65285	182239	247524 (4.0)
Jehanabad	1.1	9598	11777	21375 (0.6)	28904	16746	45650 (0.7)
Arwal	0.7	6386	3989	10375 (0.3)	49398	10359	59757 (1.0)
Nawada	2.1	50300	26791	77091 (2.2)	73736	32989	106725 (1.7)
Aurangabad	2.4	32093	31547	63640 (1.9)	79877	86879	166756 (2.7)
Saran	3.8	43232	44152	87384 (2.5)	111089	126151	237240 (3.9)
Siwan	3.2	18666	49296	67962 (2.0)	55834	175487	231321 (3.8)
Gopalganj	2.5	27872	61616	89488 (2.6)	22783	139160	161943 (2.6)
W. Champaran	3.8	86103	44880	130983 (3.8)	183616	105892	289508 (4.7)
E. Champaran	4.9	188239	68829	257068 (7.5)	215445	63449	278894 (4.5)
Muzaffarpur	4.6	29216	150799	180015 (5.2)	84516	224262	308778 (5)
Sitamarhi	3.3	215910	22516	238426 (6.9)	82691	5862	88553 (1.4)
Sheohar	0.6	8106	7312	15418 (0.4)	48347	14168	62515 (1.0)
Vaishali	3.4	40242	21414	61656 (1.8)	131617	51169	182786 (3.0)
Darbhanga	3.8	67545	43470	111015 (3.2)	210959	103331	314290 (5.1)
Madhubani	4.3	129001	40772	169773 (4.9)	280454	83668	364122 (5.9)
Samastipur	4.1	38568	30015	68583 (2)	196103	125216	321319 (5.2)
Begusarai	2.8	36972	23301	60273 (1.8)	121519	64250	185769 (3.0)
Munger	1.3	61772	14001	75773 (2.2)	41915	9242	51157 (0.8)
Sheikhpura	0.6	19487	23780	43267 (1.3)	5674	5841	11515 (0.2)
Lakhisarai	1	30644	127	30771 (0.9)	60337	5314	65651 (1.1)
Jamui	1.7	42654	13323	55977 (1.6)	91476	34379	125855 (2.1)
Khagaria	1.6	25357	35104	60461 (1.8)	52550	32981	85531 (1.4)
Bhagalpur	2.9	42635	15863	58498 (1.7)	106073	49389	155462 (2.5)
Banka	2.0	27890	32293	60183 (1.8)	55009	76416	131425 (2.1)
Saharsa	1.8	37096	19515	56611 (1.6)	119777	37425	157202 (2.6)
Supaul	2.1	98983	21162	120145 (3.5)	130525	36509	167034 (2.7)
Madhepura	1.9	43985	15361	59346 (1.7)	142154	39340	181494 (3.0)
Purnea	3.2	63919	37085	101004 (2.9)	118666	75043	193709 (3.2)
Kishanganj	1.6	48789	2200	50989 (1.5)	121125	5728	126853 (2.1)
Araria	2.7	92799	8232	101031 (2.9)	216889	22821	239710 (3.9)
Katihar	3.0	40429	36390	76819 (2.2)	78498	83476	161974 (2.6)
Bihar	100	2187939	1246626	3434565 (100)	3748536	2387019	6135555 (100)

Note : Figures in parenthesis denote percent share;
Source : Jeevika, GoB

Table A 11.17 : Total Enrolment in Primary and Upper Primary Levels (All) (2015-16 to 2017-18)

(in Lakh)

District	2015-16			2016-17			2017-18		
	Primary	Upper Primary	Total	Primary	Upper Primary	Total	Primary	Upper Primary	Total
Patna	7.31	3.11	10.42	7.32	3.12	10.44	7.32	3.12	10.44
Nalanda	5.65	2.79	8.44	5.97	2.79	8.76	5.85	3.13	8.98
Bhojpur	3.90	1.68	5.58	3.76	1.70	5.46	1.85	3.64	5.49
Buxar	3.90	1.75	5.65	3.90	1.75	5.65	4.15	1.66	5.81
Rohtas	3.30	1.13	4.43	3.35	1.16	4.51	3.38	1.07	4.45
Kaimur	2.33	1.27	3.60	2.22	1.37	3.59	2.22	1.37	3.59
Gaya	6.13	2.95	9.08	6.05	2.80	8.86	6.15	2.48	8.63
Jehanabad	1.55	0.71	2.26	1.28	0.68	1.95	1.47	0.81	2.28
Arwal	1.09	0.53	1.62	1.11	0.54	1.65	1.11	0.54	1.65
Nawada	3.45	1.55	5.00	3.41	1.56	4.97	3.26	2.54	5.80
Aurangabad	3.87	1.95	5.82	3.71	2.06	5.77	3.65	2.05	5.70
Saran	5.70	2.87	8.57	5.51	2.90	8.41	2.60	5.75	8.35
Siwan	4.49	2.36	6.85	4.49	2.36	6.85	3.67	1.99	5.66
Gopalganj	4.08	1.91	5.99	4.38	1.91	6.29	2.35	3.72	6.07
W. Champaran	7.08	2.38	9.46	7.08	2.38	9.46	4.31	5.18	9.49
E. Champaran	8.78	3.51	12.29	8.78	3.51	12.29	4.05	7.64	11.69
Muzaffarpur	9.94	4.90	14.83	9.92	4.92	14.84	9.91	4.92	14.83
Sitamarhi	5.30	1.84	7.14	5.30	1.84	7.14	5.13	2.30	7.43
Sheohar	0.92	0.26	1.18	0.97	0.24	1.21	0.98	0.46	1.44
Vaishali	5.16	1.75	6.91	3.97	2.54	6.51	3.42	3.66	7.08
Darbhanga	5.47	2.29	7.76	5.48	2.30	7.79	3.59	3.72	7.31
Madhubani	6.85	1.89	8.74	7.40	1.81	9.21	6.85	2.28	9.13
Samastipur	6.27	2.66	8.93	6.31	2.67	8.98	6.05	3.02	9.07
Begusarai	6.90	3.15	10.05	6.72	3.15	9.87	6.78	3.15	9.93
Munger	1.89	0.76	2.65	1.89	0.76	2.65	0.63	1.66	2.29
Sheikhpura	0.95	0.40	1.36	0.98	0.43	1.41	0.76	0.65	1.41
Lakhisaray	1.65	0.74	2.39	1.58	0.74	2.32	1.48	0.70	2.18
Jamui	3.16	1.22	4.38	3.19	1.23	4.43	2.45	1.20	3.65
Khagaria	2.74	1.17	3.90	2.63	1.15	3.78	2.39	1.07	3.46
Bhagalpur	4.12	1.80	5.93	4.12	1.80	5.93	2.83	3.05	5.88
Banka	3.27	1.43	4.70	2.94	1.38	4.32	2.59	2.24	4.83
Saharsa	3.27	1.29	4.56	3.35	1.31	4.67	2.45	2.20	4.65
Supaul	4.25	1.09	5.34	3.63	1.43	5.06	3.47	1.63	5.10
Madhepura	3.57	1.82	5.39	3.57	1.82	5.39	2.67	1.84	4.51
Purnia	4.85	2.37	7.22	5.29	2.37	7.66	4.74	2.95	7.69
Kishanganj	1.94	1.92	3.86	2.10	1.37	3.47	2.21	1.41	3.62
Araria	2.76	2.74	5.50	2.92	2.79	5.71	3.23	2.53	5.76
Katihar	5.51	2.37	7.89	5.72	2.70	8.42	5.71	2.70	8.41
Bihar	163.36	72.32	235.68	162.32	73.33	235.64	137.71	96.03	233.74

Source : Department of Education, GoB

Table A 11.18 : Total Enrolment in Primary and Upper Primary Levels (SC) (2015-16 to 2017-18)

(in Lakh)

District	2015-16			2016-17			2017-18		
	Primary	Upper Primary	Total	Primary	Upper Primary	Total	Primary	Upper Primary	Total
Patna	1.25	0.67	1.92	1.31	0.67	1.98	1.31	0.66	1.97
Nalanda	1.85	0.85	2.7	1.85	0.85	2.7	1.87	0.81	2.68
Bhojpur	0.73	0.36	1.09	0.69	0.39	1.08	0.69	0.39	1.08
Buxar	0.46	0.22	0.69	0.46	0.22	0.69	0.53	0.31	0.84
Rohtas	0.47	0.12	0.6	0.48	0.13	0.61	0.49	0.13	0.62
Kaimur	0.64	0.35	0.99	0.61	0.38	0.99	0.61	0.38	0.99
Gaya	2.38	0.97	3.35	2.34	0.93	3.28	2.03	0.84	2.87
Jehanabad	0.38	0.16	0.53	0.29	0.13	0.43	0.34	0.18	0.52
Arwal	0.17	0.08	0.25	0.18	0.09	0.26	0.17	0.08	0.25
Nawada	0.97	0.33	1.31	1.09	0.43	1.53	1.09	0.43	1.52
Aurangabad	1.24	0.58	1.82	1.18	0.58	1.77	1.06	0.53	1.59
Saran	0.92	0.41	1.33	0.87	0.41	1.29	0.87	0.41	1.28
Siwan	0.63	0.33	0.96	0.63	0.33	0.96	0.56	0.27	0.83
Gopalganj	0.67	0.28	0.96	0.67	0.28	0.96	0.67	0.28	0.95
W. Champaran	1.2	0.37	1.57	1.2	0.37	1.57	1.01	0.35	1.36
E. Champaran	1.35	0.47	1.81	1.35	0.47	1.81	1.34	0.49	1.83
Muzaffarpur	1.65	0.79	2.44	1.65	0.79	2.44	1.65	0.8	2.45
Sitamarhi	0.53	0.18	0.71	0.53	0.18	0.71	0.56	0.25	0.81
Sheohar	0.18	0.05	0.23	0.17	0.04	0.21	0.19	0.08	0.27
Vaishali	1.28	0.36	1.65	1.2	0.68	1.88	1.19	0.68	1.87
Darbhanga	1.14	0.41	1.56	1.17	0.5	1.67	1.07	0.47	1.54
Madhubani	1.23	0.23	1.46	1.21	0.22	1.43	1.21	0.22	1.43
Samastipur	1.32	0.49	1.8	1.32	0.49	1.81	1.32	0.48	1.8
Begusarai	0.91	0.36	1.27	1	0.45	1.45	0.97	0.44	1.41
Munger	0.38	0.12	0.51	0.38	0.12	0.51	0.32	0.14	0.46
Sheikhpura	0.17	0.05	0.22	0.22	0.08	0.3	0.22	0.07	0.29
Lakhisarai	0.31	0.13	0.44	0.29	0.14	0.42	0.23	0.1	0.33
Jamui	0.59	0.22	0.81	0.59	0.22	0.81	0.52	0.22	0.74
Khagaria	0.57	0.19	0.76	0.61	0.2	0.81	0.53	0.19	0.72
Bhagalpur	0.54	0.26	0.8	0.54	0.26	0.8	0.54	0.25	0.79
Banka	0.45	0.21	0.66	0.47	0.22	0.69	0.37	0.19	0.56
Saharsa	0.74	0.23	0.97	0.74	0.24	0.98	0.74	0.23	0.97
Supaul	0.71	0.11	0.82	0.71	0.11	0.82	0.71	0.11	0.82
Madhepura	0.58	0.37	0.95	0.58	0.37	0.95	0.61	0.27	0.88
Purnea	0.71	0.35	1.06	0.71	0.35	1.06	0.68	0.43	1.11
Kishanganj	0.18	0.07	0.24	0.19	0.06	0.25	0.18	0.06	0.24
Araria	0.26	0.2	0.46	0.27	0.2	0.47	0.26	0.2	0.46
Katihar	1.05	0.45	1.49	1.09	0.46	1.55	1.08	0.46	1.54
Bihar	30.81	12.39	43.2	30.88	13.06	43.94	29.79	12.88	42.67

Source : Department of Education, GoB

Table A 11.19 : Total Enrolment in Primary and Upper Primary Levels (ST) (2015-16 to 2017-18)

(in Lakh)

District	2015-16			2016-17			2017-18		
	Primary	Upper Primary	Total	Primary	Upper Primary	Total	Primary	Upper Primary	Total
Patna	0.04	0.00	0.05	0.04	0.00	0.05	0.04	0.04	0.08
Nalanda	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02
Bhojpur	0.05	0.02	0.06	0.04	0.02	0.06	0.04	0.02	0.06
Buxar	0.02	0.01	0.04	0.02	0.01	0.04	0.06	0.04	0.10
Rohtas	0.04	0.02	0.05	0.04	0.02	0.06	0.04	0.02	0.06
Kaimur	0.12	0.04	0.16	0.11	0.04	0.16	0.11	0.04	0.15
Gaya	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.02
Jehanabad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arwal	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
Nawada	0.02	0.00	0.02	0.02	0.01	0.03	0.02	0.01	0.03
Aurangabad	0.01	0.00	0.02	0.02	0.01	0.02	0.03	0.02	0.05
Saran	0.10	0.05	0.15	0.10	0.05	0.15	0.10	0.05	0.15
Siwan	0.18	0.09	0.27	0.18	0.09	0.27	0.18	0.10	0.28
Gopalganj	0.16	0.08	0.23	0.16	0.08	0.23	0.15	0.08	0.23
W. Champaran	0.54	0.21	0.76	0.54	0.21	0.76	0.48	0.21	0.69
E. Champaran	0.05	0.01	0.06	0.05	0.01	0.06	0.16	0.06	0.22
Muzaffarpur	0.03	0.01	0.04	0.03	0.01	0.04	0.02	0.01	0.03
Sitamarhi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sheohar	0.01	0.00	0.02	0.01	0.00	0.02	0.01	0.01	0.02
Vaishali	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Darbhanga	0.02	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Madhubani	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01
Samastipur	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begusarai	0.00	0.00	0.01	0.01	0.00	0.01	0.04	0.02	0.06
Munger	0.06	0.01	0.07	0.06	0.01	0.07	0.05	0.02	0.07
Sheikhpura	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lakhisarai	0.03	0.01	0.04	0.03	0.01	0.04	0.02	0.01	0.03
Jamui	0.22	0.07	0.29	0.22	0.07	0.29	0.18	0.06	0.24
Khagaria	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01
Bhagalpur	0.13	0.06	0.19	0.13	0.06	0.19	0.13	0.06	0.19
Banka	0.19	0.06	0.25	0.15	0.06	0.21	0.16	0.05	0.21
Saharsa	0.03	0.01	0.04	0.03	0.01	0.04	0.03	0.01	0.04
Supaul	0.02	0.00	0.03	0.02	0.00	0.03	0.02	0.00	0.02
Madhepura	0.04	0.04	0.08	0.04	0.04	0.08	0.03	0.01	0.04
Purnea	0.33	0.16	0.49	0.33	0.16	0.49	0.33	0.20	0.53
Kishanganj	0.10	0.06	0.15	0.10	0.05	0.16	0.10	0.05	0.15
Araria	0.19	0.14	0.33	0.19	0.13	0.33	0.19	0.13	0.32
Katihar	0.54	0.18	0.72	0.57	0.19	0.75	0.56	0.19	0.75
Bihar	3.30	1.36	4.69	3.28	1.36	4.70	3.42	1.54	4.94

Source : Department of Education, GoB

Table A 11.20 : District-wise Number of Primary and Upper Primary Schools in Bihar (2016-17 and 2017-18)

District	2016-17			2017-18		
	Primary	Upper Primary	Total	Primary	Upper Primary	Total
Patna	2190	1176	3366	2190	1176	3366
Nalanda	1368	803	2171	1368	803	2171
Bhojpur	1210	840	2050	1210	840	2050
Buxar	789	512	1301	812	534	1346
Rohtas	1324	556	1880	1525	1031	2556
Kaimur	649	625	1274	649	625	1274
Gaya	1702	1413	3115	1699	1432	3131
Jehanabad	557	359	916	557	359	916
Arwal	333	193	526	333	193	526
Nawada	910	698	1608	996	697	1693
Aurangabad	961	960	1921	961	960	1921
Saran	1575	1152	2727	1575	1152	2727
Siwan	1311	1188	2499	1308	1301	2609
Gopalganj	1140	811	1951	1093	807	1900
W. Champaran	1694	1092	2786	1694	1116	2810
E. Champaran	2059	1427	3486	2122	1730	3852
Muzaffarpur	1790	1569	3359	1790	1569	3359
Sitamarhi	1204	867	2071	1204	867	2071
Sheohar	233	184	417	225	209	434
Vaishali	1087	953	2040	1087	953	2040
Darbhanga	1512	909	2421	1512	909	2421
Madhubani	1962	1005	2967	1962	1005	2967
Samastipur	1708	1033	2741	1708	1033	2741
Begusarai	867	952	1819	862	1020	1882
Munger	639	489	1128	554	521	1075
Sheikhpura	294	287	581	294	287	581
Lakhisaray	486	291	777	495	248	743
Jamui	856	848	1704	829	836	1665
Khagaria	538	515	1053	566	493	1059
Bhagalpur	961	841	1802	961	841	1802
Banka	1250	885	2135	1281	904	2185
Saharsa	767	531	1298	767	531	1298
Supaul	1111	713	1824	1111	713	1824
Madhepura	959	744	1703	961	647	1608
Purnia	1484	958	2442	1326	955	2281
Kishanganj	823	496	1319	823	496	1319
Araria	1327	562	1889	1327	562	1889
Katihar	1195	719	1914	1195	719	1914
Bihar	42825	30156	72981	42932	31074	74006

Source : Department of Education, GoB

Table A 11.21 : District-wise Number of Primary and Upper Primary Teachers in Bihar (2016-17 and 2017-18)

District	2016-17			2017-18		
	Primary Schools	Upper Primary Schools	Total	Primary Schools	Upper Primary Schools	Total
Patna	9237	11246	20483	9220	11127	20347
Nalanda	4948	9678	14626	4956	9676	14632
Bhojpur	4401	6580	10981	4394	6572	10966
Buxar	3581	3650	7231	3723	3726	7449
Rohtas	3466	2733	6199	3538	2780	6318
Kaimur	2218	4079	6297	2218	4077	6295
Gaya	5856	8346	14202	6423	8961	15384
Jehanabad	1884	3266	5150	1807	3363	5170
Arwal	2313	914	3227	2313	914	3227
Nawada	7131	6931	14062	7131	6931	14062
Aurangabad	4228	5608	9836	4173	5558	9731
Saran	6019	10061	16080	6019	10061	16080
Siwan	5808	11020	16828	8897	11602	20499
Gopalganj	4391	6810	11201	4391	6810	11201
W. Champaran	5779	7738	13517	6165	11963	18128
E. Champaran	7113	11470	18583	7689	12348	20037
Muzaffarpur	5995	11203	17198	5990	10956	16946
Sitamarhi	3659	7615	11274	3469	6751	10220
Sheohar	654	1644	2298	948	1624	2572
Vaishali	3870	8328	12198	3870	8328	12198
Darbhanga	5595	7377	12972	5595	7377	12972
Madhubani	6825	7903	14728	6825	7903	14728
Samastipur	5500	7920	13420	5500	7920	13420
Begusarai	11764	2110	13874	8188	8851	17039
Munger	1705	2948	4653	1600	4405	6005
Sheikhpura	699	1565	2264	699	1565	2264
Lakhisarai	1882	2598	4480	1673	2321	3994
Jamui	5872	2453	8325	5401	2253	7654
Khagaria	1740	4141	5881	1902	4765	6667
Bhagalpur	4460	6371	10831	4460	6371	10831
Banka	2859	4555	7414	3196	5038	8234
Saharsa	2861	5540	8401	2861	5540	8401
Supaul	6688	2013	8701	6688	2013	8701
Madhepura	2602	5731	8333	3869	5375	9244
Purnea	5071	5841	10912	5753	5101	10854
Kishanganj	3763	2521	6284	3763	2521	6284
Araria	7226	2099	9325	7226	2099	9325
Katihar	4519	7717	12236	4519	7717	12236
Bihar	174182	220323	394505	177052	233263	410315

Source : Department of Education, GoB

Table A 11.22 : District-wise Coverage of MDMS (Class I-V) (2016-17 to 2018-19)

Districts	2016-17			2017-18			2018-19		
	Total Enrolment (in lakhs)	Coverage of MDM (per day) (lakhs)	Coverage (%)	Total Enrolment (in lakhs)	Coverage of MDM (per day) (lakhs)	Coverage (%)	Total Enrolment (in lakhs)	No. of Children Availing MDM (per day) (in lakhs)	Coverage (%)
Patna	5.25	3.56	67.77	4.71	3.02	64.19	4.50	2.59	57.6
Nalanda	3.44	2.08	60.34	3.05	1.94	63.62	3.00	1.79	59.7
Bhojpur	3.21	2.03	63.09	2.87	1.73	60.45	2.67	1.45	54.3
Buxar	2.20	1.38	62.74	1.81	1.20	66.26	1.61	1.05	65.2
Rohtas	3.54	2.23	62.92	3.23	2.01	62.27	2.97	1.77	59.6
Kaimur	2.11	1.36	64.73	1.80	1.23	67.96	1.69	1.14	67.5
Gaya	5.71	3.42	59.87	5.23	3.04	58.11	4.61	2.75	59.7
Jehanabad	1.24	0.83	67.00	1.19	0.71	59.67	0.99	0.62	62.6
Arwal	0.94	0.57	61.12	0.88	0.50	56.14	0.81	0.46	56.8
Nawada	3.25	1.97	60.63	2.72	1.70	62.59	2.50	1.55	62.0
Aurangabad	3.44	2.17	63.06	3.17	1.98	62.37	3.11	1.78	57.2
Saran	5.22	3.59	68.78	5.02	3.21	63.82	4.71	2.90	61.6
Siwan	3.57	2.44	68.32	3.03	2.05	67.57	2.86	1.78	62.2
Gopalganj	3.36	2.24	66.55	2.82	1.88	66.69	2.68	1.76	65.7
W. Champaran	5.86	4.33	73.90	5.15	3.64	70.68	4.64	3.28	70.7
E. Champaran	7.72	5.03	65.18	7.27	4.69	64.45	6.67	4.30	64.5
Muzaffarpur	6.10	3.94	64.52	5.43	3.48	64.11	5.15	3.08	59.8
Sitamarhi	5.56	3.48	62.51	5.14	3.00	58.35	4.50	2.77	61.6
Sheohar	1.11	0.73	65.46	1.09	0.69	63.39	1.08	0.60	55.6
Vaishali	4.11	2.29	55.63	3.63	2.05	56.47	3.50	1.86	53.1
Darbhanga	5.12	3.38	66.01	4.74	3.10	65.33	4.63	2.87	62.0
Madhubani	6.77	4.51	66.68	6.43	4.02	62.56	6.26	3.67	58.6
Samastipur	5.46	3.49	63.82	4.68	3.02	64.58	4.34	2.80	64.5
Begusarai	3.94	2.65	67.19	3.21	2.21	68.73	3.33	2.19	65.8
Munger	1.71	1.04	60.85	1.47	0.92	62.67	1.37	0.84	61.3
Sheikhpura	0.92	0.54	58.03	0.74	0.47	63.39	0.73	0.43	58.9
Lakhisarai	1.51	0.98	64.95	1.28	0.83	65.05	1.19	0.7	58.8
Jamui	2.92	1.85	63.38	2.61	1.67	64.05	2.32	1.48	63.8
Khagaria	2.65	1.60	60.45	2.31	1.47	63.82	2.29	1.38	60.3
Bhagalpur	4.02	2.50	62.31	3.56	2.27	63.71	3.35	2.08	62.1
Banka	2.69	1.65	61.28	2.28	1.48	64.97	2.18	1.40	64.2
Saharsa	3.23	1.92	59.42	2.84	1.68	59.22	2.69	1.58	58.7
Supaul	3.26	2.01	61.74	2.93	1.80	61.38	2.76	1.66	60.1
Madhepura	3.29	1.94	59.08	2.76	1.74	63.17	2.58	1.63	63.2
Purnea	5.30	2.91	54.87	4.70	2.74	58.28	4.59	2.59	56.4
Kishanganj	2.81	1.76	62.45	2.39	1.48	61.89	2.28	1.44	63.2
Araria	4.44	2.54	57.29	3.94	2.32	58.71	3.87	2.22	57.4
Katihar	4.74	2.79	58.91	4.45	2.58	57.93	4.39	2.39	54.4
Bihar	141.70	89.70	63.30	126.59	79.55	62.84	119.40	72.63	60.8

Source : Directorate of Mid-Day Meal Scheme, GoB

Table A 11.23 : District-wise Coverage of MDMS (Class VI-VIII) (2016-17 to 2018-19)

District	2016-17			2017-18			2018-19		
	Total Enrolment (in lakhs)	Coverage of MDM (per day) (lakhs)	Coverage (%)	Total Enrolment (in lakhs)	Coverage of MDM (per day) (lakhs)	Coverage (%)	Total Enrolment (in lakhs)	No. of Children Availing MDM (per day) (in lakhs)	Coverage (%)
Patna	2.63	1.57	59.81	2.50	1.45	57.90	2.44	1.32	54.1
Nalanda	1.61	0.98	60.76	1.52	0.93	61.33	1.52	0.89	58.6
Bhojpur	1.71	0.95	55.28	1.63	0.87	53.05	1.57	0.79	50.3
Buxar	1.19	0.70	58.50	1.07	0.65	60.39	1.00	0.61	61.0
Rohtas	1.99	1.12	56.53	1.91	1.09	56.85	1.84	1.01	54.9
Kaimur	1.21	0.69	57.41	1.10	0.68	61.52	1.07	0.65	60.7
Gaya	2.56	1.35	52.95	2.45	1.26	51.51	2.26	1.2	53.1
Jehanabad	0.69	0.38	55.78	0.67	0.34	51.45	0.59	0.32	54.2
Arwal	0.56	0.27	48.13	0.53	0.24	45.49	0.50	0.25	50.0
Nawada	1.48	0.77	52.02	1.37	0.79	57.40	1.33	0.69	51.9
Aurangabad	1.85	1.12	60.23	1.84	1.13	61.34	1.83	1.08	59.0
Saran	2.74	1.73	63.15	2.73	1.71	62.58	2.72	1.67	61.4
Siwan	2.03	1.26	61.78	1.85	1.17	63.32	1.81	1.1	60.8
Gopalganj	1.66	1.03	62.31	1.49	0.95	63.94	1.44	0.88	61.1
W. Champaran	2.13	1.42	66.89	2.05	1.30	63.24	1.99	1.28	64.3
E. Champaran	3.30	2.04	61.70	3.36	2.01	59.81	3.26	1.97	60.4
Muzaffarpur	3.15	1.85	58.76	3.00	1.74	57.98	2.98	1.62	54.4
Sitamarhi	2.39	1.40	58.76	2.40	1.41	58.92	2.33	1.4	60.1
Sheohar	0.44	0.30	67.35	0.47	0.31	65.97	0.51	0.32	62.7
Vaishali	2.13	1.09	51.28	2.02	1.06	52.65	1.98	0.99	50.0
Darbhanga	2.27	1.37	60.28	2.31	1.40	60.59	2.28	1.34	58.8
Madhubani	3.30	1.99	60.22	3.23	1.82	56.29	3.20	1.75	54.7
Samastipur	2.85	1.60	56.00	2.69	1.48	55.07	2.50	1.44	57.6
Begusarai	2.04	1.22	59.90	1.74	1.14	65.28	1.85	1.13	61.1
Munger	0.89	0.50	56.16	0.82	0.48	58.78	0.79	0.46	58.2
Sheikhpura	0.44	0.22	49.20	0.39	0.25	64.53	0.39	0.21	53.8
Lakhisarai	0.69	0.39	55.81	0.65	0.35	52.81	0.64	0.34	53.1
Jamui	1.19	0.70	59.14	1.20	0.72	59.81	1.18	0.69	58.5
Khagaria	1.19	0.62	51.96	1.04	0.59	56.89	1.07	0.59	55.1
Bhagalpur	1.94	1.13	57.90	1.81	1.10	60.63	1.81	1.07	59.1
Banka	1.30	0.72	55.85	1.20	0.72	59.86	1.16	0.69	59.5
Saharsa	1.27	0.63	49.56	1.13	0.65	57.50	1.10	0.54	49.1
Supaul	1.43	0.71	49.82	1.31	0.69	52.83	1.26	0.63	50.0
Madhepura	1.57	0.81	51.58	1.23	0.70	56.91	1.19	0.66	55.5
Purnea	1.97	0.95	48.28	1.85	0.92	50.03	1.84	0.9	48.9
Kishanganj	1.06	0.56	52.99	1.05	0.55	52.19	1.06	0.61	57.5
Araria	1.44	0.68	47.18	1.31	0.66	49.87	1.30	0.62	47.7
Katihar	2.01	0.99	49.56	1.93	0.96	49.80	1.99	0.93	46.7
Bihar	66.27	37.80	57.04	62.84	36.24	57.68	61.58	34.64	56.3

Source : Directorate of Mid-Day Meal Scheme, GoB

Table A 11.24 : District-wise Number of Colleges of Bihar (2016-17 to 2018-19)

Districts	Affiliated College	Constituent College	Affiliated College	Constituent College	Affiliated College	Constituent College
	2016-17		2017-18		2018-19	
Patna	86	37	71	38	91	38
Nalanda	26	6	25	6	32	6
Bhojpur	21	6	22	6	22	6
Buxar	14	5	14	5	16	5
Rohtas	32	8	37	8	37	8
Kaimur	15	2	15	2	15	2
Gaya	27	7	32	7	30	7
Jehanabad	7	3	9	3	12	3
Arwal	3	1	3	1	3	1
Nawada	6	4	9	4	9	4
Aurangabad	13	5	13	5	15	5
Saran	9	12	13	12	13	12
Siwan	7	7	13	7	14	7
Gopalganj	4	5	7	5	7	5
W.Champaran	8	3	7	3	8	3
E. Champaran	3	8	5	8	5	8
Muzaffarpur	13	19	18	19	26	19
Sitamarhi	5	6	8	6	8	6
Sheohar	0	0	0	0	1	0
Vaishali	12	7	17	7	22	7
Darbhanga	27	22	28	22	29	22
Madhubani	19	18	20	18	20	18
Samastipur	18	15	19	15	20	15
Begusarai	8	6	10	6	12	6
Munger	2	7	2	7	3	7
Sheikhpura	3	2	2	2	2	2
Lakhisarai	3	2	0	2	0	2
Jamui	3	2	2	2	4	2
Khagaria	1	5	3	5	4	5
Bhagalpur	13	13	13	13	16	13
Banka	11	2	11	2	13	2
Saharsa	6	9	6	9	6	9
Supaul	5	3	6	3	6	3
Madhepura	11	5	10	5	10	5
Purnea	12	6	11	6	11	6
Kishanganj	6	2	5	2	5	2
Araria	8	2	7	2	7	2
Katihar	11	4	11	4	10	5
Bihar	478	276	504	277	564	278

Source : Department of Education, GoB

Table 11.25 : District-wise and Steam-wise Number of Colleges in Bihar up (2018-19)

Districts	Arts Fine Arts, Social Work, Science & Commerce	Enginee-ring	Medical (including Dental)	B.Ed	Law	Others	All Colleges
Patna	50	4	5	47	3	20	129
Nalanda	16	2	1	18	0	1	38
Bhojpur	16	0	0	10	1	1	28
Buxar	11	0	0	5	1	4	21
Rohtas	34	1	1	7	1	1	45
Kaimur	10	0	0	5	0	2	17
Gaya	11	2	1	20	0	3	37
Jehanabad	7	0	0	7	0	1	15
Arwal	4	0	0	0	0	0	4
Nawada	7	0	0	5	1	0	13
Aurangabad	8	1	0	11	0	0	20
Saran	15	1	0	6	0	3	25
Siwan	11	1	0	8	0	1	21
Gopalganj	7	0	0	3	0	2	12
W. Champaran	7	0	1	1	0	2	11
E. Champaran	8	1	1	2	0	1	13
Muzaffarpur	21	1	1	16	1	5	45
Sitamarhi	9	1	0	3	0	1	14
Sheohar	0	0	0	1	0	0	1
Vaishali	15	2	0	12	0	0	29
Darbhanga	24	2	3	11	1	10	51
Madhubani	22	0	0	6	0	10	38
Samastipur	19	0	0	12	1	3	35
Begusarai	8	1	0	6	1	2	18
Munger	7	0	0	2	1	0	10
Sheikhpura	3	0	0	1	0	0	4
Lakhisarai	2	0	0	0	0	0	2
Jamui	1	1	0	1	0	3	6
Khagaria	4	0	0	3	0	2	9
Bhagalpur	17	1	1	7	1	2	29
Banka	6	2	0	6	0	1	15
Saharsa	8	1	0	2	1	3	15
Supaul	7	1	0	1	0	0	9
Madhepura	7	1	0	2	1	4	15
Purnea	10	3	0	2	1	1	17
Kishanganj	5	2	0	0	0	0	7
Araria	8	1	0	0	0	0	9
Katihar	8	1	2	2	1	1	15
Bihar	433	34	17	251	17	90	842

Source : Department of Education, GoB

Table A 11.26 : District Level Overview of SC/ST Welfare (2016-17 and 2017-18)

Districts	Stipend given to SC & ST					
	Financial Allotment (Rs. lakh)			Physical Achievement (Numbers)		
	Triennium Average (2013-14 to 2015-16)	2016-17	2017-18	Triennium Average (2013-14 to 2015-16)	2016-17	2017-18
Patna	4953.79	5606.15	498.00	228034	162496	2232
Nalanda	2550.14	2454.71	110.00	151601	119182	3510
Bhojpur	1790.43	2056.51	322.00	118125	80336	2584
Buxar	2225.62	2530.08	72.00	79805	60321	510
Rohtas	2187.75	2042.85	148.75	129910	135035	3655
Kaimur	2275.81	2364.90	143.50	124521	64970	4756
Gaya	5997.12	6077.97	513.00	289426	218571	7527
Jehanabad	1076.28	1031.15	120.00	61116	31681	1071
Arwal	489.78	540.77	100.00	36281	27779	803
Nawada	2442.63	2204.39	167.00	166846	117681	2296
Aurangabad	3565.23	2431.86	132.00	270076	11875	3922
Saran	2671.59	2146.85	283.00	156606	131618	2428
Siwan	2077.69	1852.09	262.00	104196	86307	970
Gopalganj	1752.79	1616.01	152.00	121156	75848	414
W. Champaran	2914.80	3115.43	245.00	245979	144010	1080
E. Champaran	2213.60	2151.82	130.00	142204	156058	1839
Muzaffarpur	2714.79	2405.99	506.00	179228	160850	2395
Sitamarhi	1330.16	1433.31	100.00	103062	97511	2184
Sheohar	309.60	361.25	20.00	25550	26708	259
Vaishali	2175.44	2054.08	350.00	156505	136421	614
Darbhanga	2123.23	2388.83	130.00	156714	123727	4950
Madhubani	2328.07	2491.97	402.00	208065	180184	4750
Samastipur	2179.31	1963.26	185.00	166204	140842	3148
Begusarai	1513.20	1721.89	120.00	111128	103188	4189
Munger	988.75	1068.54	71.00	50339	39987	880
Sheikhpura	546.83	723.45	60.00	32098	15916	770
Lakhisarai	696.56	884.49	69.00	49244	28176	526
Jamui	1218.54	1510.17	112.00	104444	75500	583
Khagaria	762.17	940.90	75.00	50458	36518	462
Bhagalpur	2584.40	3093.34	206.00	138381	82176	1205
Banka	1575.81	1816.58	97.00	70505	57199	663
Saharsa	959.87	1203.22	83.00	79790	62555	539
Supaul	1241.26	1491.34	52.00	79737	64137	282
Madhepura	985.66	771.80	154.00	58385	40097	287
Purnea	1899.13	2140.30	190.00	154029	114546	908
Kishanganj	607.19	701.66	72.00	44856	27147	177
Araria	894.26	1133.88	72.00	63299	30892	357
Katihar	1172.64	1357.21	129.00	94735	42392	1173
H.Q	103.43			142		
Bihar	74316.99	73881.00	6653.25	4608403	3310437	70898

Source : Department of SC/ST Welfare, GoB

(Contd...)

Table A 11.26 : District Level Overview of SC/ST Welfare (2015-16 to 2018-19) (Contd.)

Districts	Maintenance of Residential School (SC)				Hostel Maintenance (SC)	
	Financial Allotment (Rs. lakh)		Physical Achievement (Numbers)		Amount Allotted (Rs. lakh)	
	Triennium Average (2015-16 to 2017-18)	2018-19	Triennium Average (2015-16 to 2017-18)	2018-19	Triennium Average (2015-16 to 2017-18)	2018-19
Patna	456.2	739.9	600.7	815.0	102.1	97.2
Nalanda	347.7	409.2	793.3	796.0	18.9	36.8
Bhojpur	376.6	473.6	746.0	682.0	32.7	29.9
Buxar	205.0	194.0	330.0	284.0	13.1	10.3
Rohtas	332.3	443.1	779.3	783.0	39.2	34.5
Kaimur	338.5	493.3	558.0	474.0	41.1	20.9
Gaya	1348.5	1486.1	3172.0	3232.0	29.3	23.9
Jehanabad	163.7	247.6	407.7	346.0	10.2	11.3
Arwal	137.5	246.0	359.7	348.0	0.0	0.0
Nawada	447.9	579.5	995.0	1000.0	19.8	7.2
Aurangabad	135.1	179.7	325.7	378.0	9.0	8.3
Saran	162.2	133.3	317.7	293.0	25.0	26.0
Siwan	119.9	164.5	228.7	245.0	40.5	42.0
Gopalganj	188.0	325.4	356.3	399.0	25.3	45.8
W. Champaran	305.4	370.0	629.7	656.0	31.2	34.1
E. Champaran	139.7	207.1	324.0	350.0	32.9	28.4
Muzaffarpur	598.7	619.4	1084.7	1146.0	45.9	57.1
Sitamarhi	192.9	210.5	400.0	367.0	32.3	40.1
Sheohar	134.0	142.9	180.7	360.0	4.5	2.4
Vaishali	197.8	209.6	335.7	288.0	9.5	6.4
Darbhanga	120.9	170.2	219.3	278.0	44.5	38.0
Madhubani	482.3	619.7	1028.0	1064.0	11.1	2.4
Samastipur	272.1	294.1	706.3	696.0	21.7	15.5
Begusarai	170.6	182.8	346.0	351.0	3.1	2.4
Munger	155.9	216.3	319.3	335.0	18.0	16.6
Sheikhpura	108.1	144.7	229.3	200.0	2.9	2.4
Lakhisarai	110.1	201.4	244.0	305.0	6.8	2.4
Jamui	136.0	198.7	242.3	325.0	2.9	7.2
Khagaria	166.9	197.3	363.7	371.0	16.5	11.8
Bhagalpur	207.2	236.0	351.0	345.0	45.5	67.5
Banka	110.6	139.3	222.3	230.0	11.4	8.3
Saharsa	193.6	271.5	378.0	373.0	25.2	15.7
Supaul	109.9	123.2	138.0	153.0	18.2	10.7
Madhepura	138.9	280.2	276.3	309.0	19.9	31.5
Purnea	197.3	146.7	394.0	339.0	34.2	17.9
Kishanganj	171.7	204.7	352.7	361.0	6.2	11.6
Araria	198.7	253.3	330.7	375.0	22.7	19.0
Katihar	154.3	185.3	374.7	353.0	24.3	12.9
Bihar	9532.3	11940.0	19440.7	20005.0	897.5	856.6

Source : Department of SC/ST Welfare, GoB

(Concluded)

CHAPTER - XII

CHILD DEVELOPMENT

Safety and security don't just happen, they are the result of collective consensus and public investment. We owe our children, the most vulnerable citizens in our society, a life free of violence and fear.

— Nelson Mandela

Abstract

The child development programmes ensure that children do not lose their childhood, because of work, disease, and anguish. For this, the state should safeguard the rights of all children, including those who do not face adverse circumstances. Successful integration of survival, development, protection and participation policies are the core to overall wellbeing of the child. In order to satisfy all these needs, the process of child budgeting was initiated in Bihar in 2013-14. Between 2013-14 and 2018-19, the overall allocation for children has increased at an annual rate of 20.9 percent. Similarly, the expenditure also grew at the rate of 23.3 percent, which was higher than that of allocation. During the same period, the per capita expenditure increased more than three times from Rs. 1225 to Rs. 3727. The share of expenditure on child development in the total state budget lies at around 12 percent, with some year-to-year variation. Likewise, the share of expenditure as percentage of GSDP is around 3 percent. The concerted efforts of the State Government in educational sector has led to the reduction in number of out-of-school children from 2.17 lakh in 2016-17 to 1.44 lakh in 2018-19. The Integrated Child Development Scheme, Poshan Abhiyan and other schemes of the State Government for child development are making substantial impact on the growth and well-being of children in Bihar.

Child development is a component of overall human development. The well-being of children is essential for the country's development, as children constitute a country's future human resource. Biologically, childhood is the span of life from birth to adolescence. A major part of the Bihar's population (4.98 crore) is children, age-group of 0-18 years (2011 census). The physical, social and emotional development of children has direct impact on their overall development. Thus, comprehending the status of children is of immense importance which may be assessed on the basis of four criteria — (i) Survival, Health and Nutrition, (ii) Education and Development, (iii) Protection, and (iv) Participation. To ensure that every child develops well, adequate investment

in early childhood development is essential. Every child has a basic right to be born in a safe and non-discriminatory environment and to grow through her formative years of life in a healthy and dignified way. However, the adverse sex ratio at birth, child mortality rates and the prevalent attitude towards girl children pose serious challenges in Bihar. Reducing the level of malnutrition and micronutrient deficiency, and increasing enrolment and retention rates in schools are the focused areas in child development in Bihar. In this background, this chapter focuses on the demographic, health, nutrition, education, protection and participation status of children in Bihar. Simultaneously, the Chapter also presents the details of the initiatives taken by the Central and State governments for the welfare of children.

12.1 Demographic Status

Bihar, with a population of 10.4 crore, is the third most populous state in India, behind Uttar Pradesh and Maharashtra. Bihar represents 8.6 percent of the India's population. In India, 39 percent of the population lies in the age bracket of 0-18 years as per Census 2011; whereas, in Bihar, 48 percent of the population is in that age group. Thus, Bihar accounts for 11 percent of India's total child population. With 4.47 crore (89.9 percent) rural children and 0.51 crore (10.1 percent) urban children, the total child population of the state adds upto 4.98 crore. In the 0-18 years age group, females account for 47.4 percent (2.36 crore) and males for 52.6 percent (2.62 crore). Between 2001 and 2011, the child population in the age-group 0-18 years in Bihar has

Table 12.1 : Demographic Profile of Children in Bihar and India (2001 and 2011)

(Figures in crore)

India/Bihar		Total			India/Bihar	Total			
		Persons	Males	Females		Persons	Males	Females	
		2011			2001				
India	0-6	16.45	8.58	7.88	India	0-6	16.38	8.50	7.88
Bihar		1.91	0.99	0.92	Bihar		1.68	0.87	0.82
India	0-14	37.24	19.44	17.81	India	0-14	36.36	18.95	17.41
Bihar		4.17	2.17	2.00	Bihar		3.49	1.83	1.66
India	0-18	47.21	24.75	22.46	India	0-18	45.05	23.65	21.40
Bihar		4.98	2.62	2.36	Bihar		4.14	2.20	1.94

Source : Census 2001 and 2011

increased by 20.3 percent, from 4.14 crore in 2001 to 4.98 crore in 2011. Between 2001 and 2011, the child population in the age group of 0-14 years increased by 19.6 percent. The total number of children in the age group of 0-6 years in Bihar was 1.91 crore in 2011, compared to

1.68 crore in 2001, implying a growth of 13.7 percent. This decreasing growth rate of child population in the lower age-groups indicates early phase of demographic transition in Bihar. It may also be mentioned here that the sex ratio is higher for children in the age group 0-6 years, indicating the efforts of the State Government for promoting gender equality. The distribution of the child population across different age-groups in different districts of Bihar is presented in Table A 12.1 (Statistical Appendix).

Children with Special Needs (CWSN)

The disability among the children is a matter of serious concern, as it has wide implications. The Census 2011 showed that, in Bihar, 8.3 lakhs children aged 0-18 years are disabled, which constitutes 1.63 percent of all children in that age-group. The percentage of male disabled children to total male children is 1.80 percent and the corresponding figure for females is 1.44 percent. At all-India level, however, disabled children constituted 1.57 percent of the total child population. One may also note that, in Bihar, about 90 percent of disabled children are located in rural areas and only 10 percent are in urban areas, as per Census 2011. Because of higher urbanisation, the situation is somewhat different at the all-India level, where 76 percent live in rural areas and 24 percent in urban areas. It is disheartening to note that, between 2001 and 2011, the increase in the number of disabled children has been higher in the rural areas, in both Bihar and India.

Table 12.2 : Children with Special Needs (0-19 years) (2001 and 2011)

(in Thousand)

India/Bihar	Male/Female	2011		2001	
		Rural	Urban	Rural	Urban
India	Male	3363.63	1054.93	3124.12	1258.01
	Female	2508.92	804.72	2466.35	1014.45
Bihar	Male	435.00	49.77	459.43	58.61
	Female	312.09	36.40	366.28	48.71

Source : Census 2001 and 2011

Child Sex Ratio (CSR)

The Sex Ratio is an important indicator of the status of women, both for children and adults. The Census 2011 data reveals that the child sex ratio is higher than the overall sex ratio in Bihar. The sex ratio in the age group 0 -6 years is 935 females per 1000 males, 923 in age-group 0-14 years age, and 897 in the age-group 0-18 years. For all ages, the ratio is 918. Among the districts,

Kishanganj (971), Katihar (961) and Gaya (960) have relatively better child sex ratio in the age group of 0-6 years, in comparison to Vaishali (904), Patna (909) and Muzaffarpur (915) which all have a highly adverse child sex ratio. The child sex ratios among the Scheduled Castes (962) and Scheduled Tribes (969) are better than the state average of 935. In fact, the child sex ratio of SC/ST is higher than the state average in all the districts of Bihar. It is important to note that the child sex ratio in the age group of 0-18 years has increased from 883 females per 1000 males in 2001 to 897 in 2011. The district-wise figures in Table A 12.2 (Statistical Appendix) indicate that the child sex ratio for 0-18 years as per 2011 census was above the state average in 20 districts. Out of all the districts, the highest sex ratio are recorded in — Gopalganj (959), Kishanganj (958) and Siwan (946). At the other end, Munger and Khagaria (861) and Vaishali (865) are districts with the lowest sex ratios.

Adolescent Population of Bihar

The adolescents are the young people aged between 10 to 19 years. It is a transitional stage of physiological and psychological development from puberty to legal adulthood. As per Census 2011, adolescent population (10-19 years) in India is 25.32 crore, constituting 20.9 percent of the total population. In Bihar, the adolescent population is 2.34 crore, constituting 22.5 percent of the total population (Table 12.3). From Table 12.2, presenting the share of adolescents in total population in different Empowered Action Group (EAG) states, one can observe that this share is the highest in Uttar Pradesh (24.5 percent), followed by Rajasthan (22.9 percent). This pattern is also observed for both male and female adolescents.

Table 12.3 : Adolescent Population in EAG States of India (2011)

(Population in crore)

State	Person	Male	Female
Bihar	2.34 (22.5)	1.26 (23.2)	1.08 (21.7)
Chhattisgarh	0.55 (21.5)	0.28 (21.8)	0.27 (21.2)
Jharkhand	0.73 (22.1)	0.38 (22.4)	0.35 (21.8)
Odisha	0.83 (19.8)	0.42 (19.8)	0.41 (19.7)
Madhya Pradesh	1.60 (22.0)	0.84 (22.3)	0.76 (21.7)
Rajasthan	1.57 (22.9)	0.83 (23.3)	0.74 (22.4)
Uttar Pradesh	4.89 (24.5)	2.60 (24.9)	2.29 (24.0)
Uttarakhand	0.23 (22.8)	0.12 (23.4)	0.11 (22.2)
India	25.32 (20.9)	13.34 (21.4)	11.98 (20.4)

Source : Census 2011, GoI

12.2 Allocation for Children

The budget for children is not a separate budget. It is basically an attempt to desegregate those allocations which are made to specifically benefit children from the overall allocation. This enables us to assess how far the policy commitments of the State Government are translated into financial commitments. Admittedly, children could be benefitted even from those programmes which are not exclusively meant for them. For example, the benefits of public provisioning of immunization services are policy-driven and assured for children; in contrast, the benefits that may accrue to children from a public sector hospital would be incidental. As such, both assured and incidental benefits from public provisioning are important, and public spending on both types of interventions, if designed and executed properly, would lead to an improvement in the wellbeing of children.

The process of Child Budgeting started in Bihar in 2013-14. The document mainly presented the details of all the schemes related to child welfare. These allocations mainly related to education and health schemes, the special schemes for girls and child security. Table 12.4 shows that there has been a constant increase in Child Budget allocation in Bihar during the last six years.

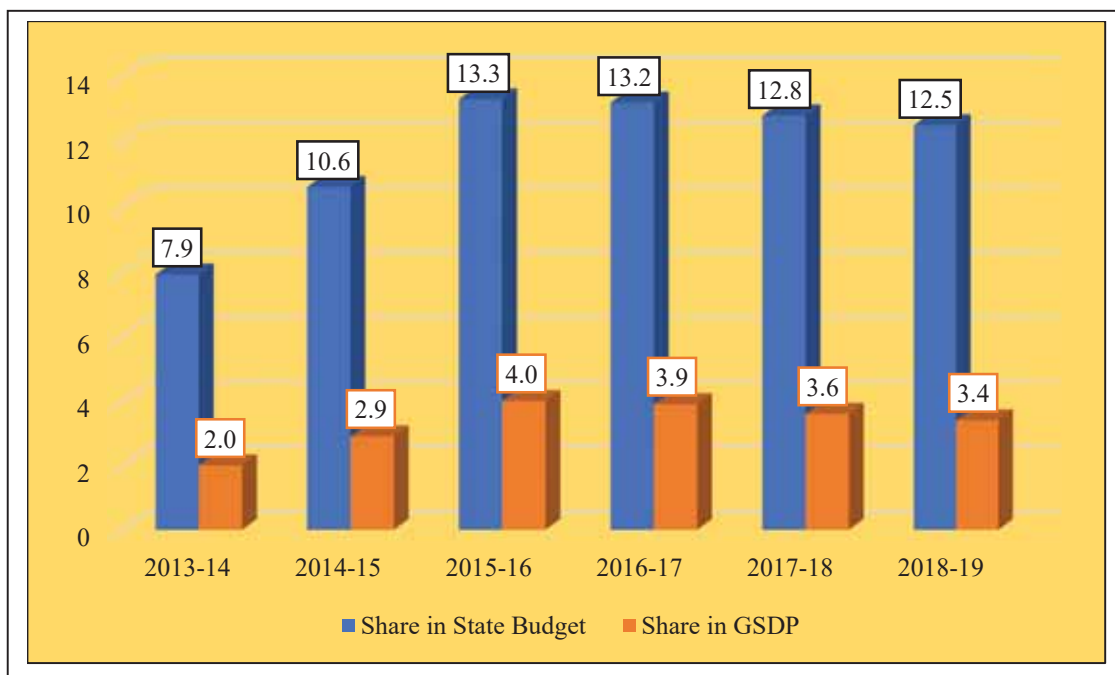
Table 12.4 : Overview of Child Budget (2013-14 to 2018-19)

Year	Expenditure (Rs. crore)	Per-Capita Expenditure (Rs)	Share of Child Budget in	
			State Budget	GSDP
2013-14	6329.66	1225	7.9	2.0
2014-15	10020.6	1904	10.6	2.9
2015-16	14950.63	2788	13.3	4.0
2016-17	16638.47	3046	13.2	3.9
2017-18	17530.24	3151	12.8	3.6
2018-19	19161.93	3727	12.5	3.4
CAGR	23.3	—	—	—

Note : 1. For PCE, estimated population has been used based on 2001 and 2011 interpolation
2. For 2018-19, expenditure figures are revised estimates (RE)

Source : Child Budget, Department of Finance, GoB

Chart 12.1 : Share of Child Budget in State Budget and GSDP (percent)



Between 2013-14 and 2018-19, the overall expenditure for children increased at an annual rate of 23.3 percent, which is indeed commendable. In the same period, the per capita expenditure increased more than thrice from Rs. 1225 in 2013-14 to Rs. 3727 in 2018-19. The share of expenditure on child development in the total state budget lies around 12 percent, with some year-to-year variation. Likewise, the share of expenditure as percentage of GSDP is around 3 percent.

Table 12.5 represents actual expenditure on the wellbeing of the children. From the table, it is seen that, in the last six years, major contributors for child welfare in the state were Education and Social Welfare departments. In 2017-18 and 2018-19, the share of Department of Education was 75.8 and 71.2 percent respectively. For the Department of Social Welfare, these shares were — 11.3 percent (2017-18) and 13.3 percent (2018-19). From the overall trend, one can easily conclude that the State Government has been very responsive to the child welfare in the state. However, in view of relatively lower level of child development in Bihar, there is a need to do even more.

Table 12.5 : Department-wise Expenditure on Child Budget (2013-14 to 2018-19)

Departments	Actual Expenditure (in Rs. crore)					
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Art, Culture and Youth	2.95 (0.05)	1.46 (0.01)	5.40 (0.04)	9.31 (0.06)	6.96 (0.04)	12.00 (0.06)
BC and EBC Welfare	1191.15 (18.8)	1167.48 (11.6)	2234.76 (15.0)	1440.25 (8.7)	1257.31 (7.6)	1630.19 (8.5)
Education	3068.07 (48.5)	5943.21 (59.3)	9299.24 (62.2)	10091.94 (60.6)	12511.44 (75.8)	13642.02 (71.2)
Social Welfare	1475.29 (23.3)	1509.2 (15.1)	1935.30 (12.9)	1886.59 (11.3)	2194.46 (13.3)	2861.62 (14.9)
Labour Resource	1.09 (0.02)	1.06 (0.01)	1.77 (0.01)	0.88 (0.01)	1.88 (0.01)	7.96 (0.04)
SC/ST Welfare	588.04 (9.3)	610.55 (6.1)	1136.41 (7.6)	1870.97 (11.2)	441.11 (2.7)	768.87 (4.0)
Health	-	755.36 (7.5)	329.31 (2.2)	1218.91 (7.3)	62.11 (0.4)	203.27 (1.1)
Minority Welfare	3.08 (0.05)	32.29 (0.32)	8.44 (0.06)	119.62 (0.72)	42.47 (0.26)	36 (0.19)
Total	6329.66 (100.0)	10020.6 (100.0)	14950.63 (100.0)	16638.47 (100.0)	16517.74 (100.0)	19161.93 (100.0)

Note : 1. Figures in parenthesis denote percentage
2. For 2018-19, expenditure figures are revised estimates (RE)
Source : Child Budget, Department of Finance, GoB

12.3 Survival, Health and Nutrition Status

The Indian Constitution via Article 39 (f) directs the state to ensure that children are given opportunities and facilities to develop in a healthy manner with freedom and dignity. Along with this, the Constitution also tries to ensure that the child and youth are protected against exploitation, and physical and moral abandonment. Factors like reduced spending on social sectors, escalating impact of climate change, deteriorating social phenomena like discrimination based on gender and caste, and the rural-urban bias together have contributed most to the worsening child vulnerabilities. Child health is fundamental to building the capabilities of the future of a growing nation. It is a great social responsibility in which the state has to play a critical role. Child undernutrition has both short and long term negative effects. The short term effects include morbidity and mortality and the long-term effects include preventing children from reaching their full developmental potential and poor cognitive performance. Nutrition has increasingly been recognized as a basic pillar for the survival and development from the early stages of foetal development. Under-nutrition adversely affects human life and is particularly harmful in the early stages of life. In this perception, there is a growing recognition that supporting children in their early years is essential for their future development. To address these issues, the present section deals with nutritional issues among the children. The indicators relevant to evaluate the health status of children below five years are — Infant Mortality Rate

(IMR), Under Five Mortality Rate (U5MR), Neo-Natal Mortality Rate (NMR), Peri-Natal Mortality Rate (PMR), and Immunisation. These indicators have already been analysed in Chapter 11 under Human Development. Along with these, other parameters to assess the health and nutrition of a children are — children under 5 years of age who are stunted (height-for-age), wasted (weight-for-height) and underweight (weight-for-age).

Stunting (height-for-age)

The stunted growth of children reflects failure to receive adequate nutrition over a long period of time. The indicator Height-for-age, therefore, represents the long-term effects of malnutrition and not just recent dietary intake. In Bihar, NFHS-4 (2015-16) estimates that 48.3 percent of children under 5 years are stunted (too short for their age), which signifies chronic under-nutrition (Table 12.6). The prevalence of stunting in the state has, however, decreased from 56 percent in 2005-06 to 48.3 percent in 2015-16. The stunting is observed to be 9.5 percentage points higher among the children in rural areas (49.3 percent), compared to urban areas (39.8 percent). For the country as a whole, the decline in stunting between 2005-06 and 2015-16 was to the extent of 9.6 percentage points. Among the districts of Bihar, the prevalence of stunting is the highest in Sitamarhi (57.3 percent) and Nalanda (54.1 percent), and the lowest in Gopalganj (35.6 percent) and Siwan (37.9 percent).

Table 12.6 : Percentage of Children suffering from malnutrition in Bihar and India (2005-06 and 2015-16)

Bihar/India	Stunted	Wasted	Under-weight
2015-16			
Bihar	48.3	20.8	43.9
India	38.4	21.0	35.7
2005-06			
Bihar	55.6	27.1	55.9
India	48.0	19.8	42.5

Source : NFHS 3 and 4,GoI

Wasting (weight-for-height)

The weight-for-height index measures body mass in relation to body length and reflects the current nutritional status. Children who are critically below the median of the reference population are considered thin (wasted) for their height, which is a consequence of malnourishment. This critical level for ‘wasted’ children is decided by a statistical measure —

median minus twice the standard deviation. Children whose weight-for-height is below the median of the reference population minus thrice the standard deviation are considered to be ‘severely’ wasted. Wasting may result from inadequate food intake or from a recent episode of illness, causing weight loss. As per NFHS-4 survey (2015-16), 20.8 percent of children under 5 years of age in the state are wasted (too thin for their height), which signify acute under-nutrition. The prevalence of wasting has registered a decrease of 6.3 percentage points between 2005-06 (27.1 percent) and 2015-16 (20.8 percent). Unlike stunting, wasting is recorded more in urban areas (21.3 percent) than in the rural areas (20.8 percent). Unfortunately, for India, there is an increase of 1.2 percentage points in the prevalence of wasting between 2005-06 and 2015-16 (Table 12.6). Among the districts, Arwal (30.7 percent), Jamui (29.4 percent) and Sheikhpura (28.9 percent) are worst performing districts. Contrary to this, Sheohar (14.8 percent), Siwan (15.0 percent) and Vaishali (15.1 percent) record the lowest level of wasting.

Underweight (weight-for-age)

Weight-for-age is a composite index of height-for-age and weight-for-height. It takes into account both acute and chronic malnutrition. Children whose weight-for-age is below the median of the reference population minus twice the standard deviation, are classified as underweight. Similarly, children whose weight-for-age is below the median of the reference population minus thrice the standard deviation are considered to be severely underweight. As per NFHS-4 results, about 43.9 percent of children under 5 years are underweight in Bihar. Between 2005-06 and 2015-16, there is a reduction of 12.0 percentage points, which is really impressive. It is also found that there is a difference of 7.1 percentage points between rural and urban areas, standing at 44.6 percent and 37.5 percent respectively. For all India, the prevalence of underweight reduced by 6.8 percentage points between 2005-06 (42.5 percent) and 2015-16 (35.7 percent) (Table 12.6). Among the 38 districts, Arwal records the highest share of underweight children at 54.0 percent, followed by Gaya (53.1 percent) and Sheikhpura (51.7 percent). Opposite to this, Gopalganj (30.5 percent), Siwan (31.6 percent) and West Champaran/ Begusarai (39.1 percent) were the districts with the lowest ratio of underweight children. The district-wise details of Stunted, Wasted and Underweight children are given in Table A 12.3 (Statistical Appendix).

12.4 Development Programme for Children

The children in the age group 0-6 years number around 19.1 million in Bihar, accounting for 18.3 percent of state’s total population (2011 census). Since the progress of the nation depends substantially on the welfare of the children, both the Central and State Governments are

administering a number of development programmes for children. The details of the child related programmes are discussed below.

Integrated Child Development Scheme (ICDS)

The flagship scheme of the Central Government (ICDS) was launched on October 2, 1975, as a corrective intervention for young children in the age group 0-6 years, and also for the expectant and nursing mothers. It aims at long term improvement in childcare, their early stimulation and learning, as well as health and nutrition. The ICDS scheme was initially launched in pursuance of the National Policy for Children in 33 experimental blocks in the country, of which 3 blocks were in Bihar. In order to address various programmatic, management and institutional gaps and to meet administrative and operational challenges, the Government approved the strengthening and restructuring of ICDS Scheme as an Umbrella Integrated Child Development Services Scheme. The Anganwadi Services Scheme (ASS) is one of the flagship programmes under ICDS, which represents the largest and unique programme for early childhood care and development. It is the foremost symbol of the country's commitment to its children and nursing mothers, as a response to the challenge of providing pre-school non-formal education on the one hand and breaking the vicious cycle of malnutrition, morbidity, reduced learning capacity and mortality on the other. The main beneficiaries of the scheme are children in the age group of 6 months to 6 years. Along with this, pregnant women, lactating women, nursing child (upto 6 months) and adolescent girls (11-14 years) who are not going to school are also benefitted through this scheme. The ICDS provides a package of six services under ASS, which are — (i) supplementary nutrition, (ii) non-formal pre-school education (for children between the age of 3-6 years), (iii) nutrition and health education for mothers, (iv) immunization, (v) health check-up and (vi) referral services. Three of the six services (Immunisation, Health check-up and Referral Services) are related to health and are provided through National Rural Health Mission (NRHM) and Public Health Infrastructure. The target group of ICDS is reached through Anganwadi Centers (AWC). The staffs for ICDS include Child Development Project Officer (CDPO), Lady Supervisors (LS), Anganwadi Workers (AWW) and Anganwadi Helpers (AWH).

At present, ICDS is running in all the 38 districts of Bihar through 544 project offices. The Directorate of ICDS has started operationalizing 23,041 more newly sanctioned AWCs from 2017-18. These 23,041 AWCs were sanctioned for Bihar by the Union Ministry of Women and Child Development (MWCD) in 2015-16. The process of implementation of these newly

sanctioned centres has been initiated, based on demand raised by CDPOs. Till date, all 544 ICDS projects are running through 1,07,603 AWCs and additional AWCs, and 7115 Mini AWCs.

As ICDS is primarily a service-based programme, its staffing pattern is extremely vital for its achievement. In all, 1.07 lakh AWCs have been established to cater to 19.1 million children (0-6 years) and 60.3 lakh pregnant and lactating women. Compared to 2013-14, there has been an increase in the number of Anganwadi Workers and Anganwadi Helpers in 2018-19; but there is a decrease in the number of CDPOs and Lady Supervisors. Similar is the trend in 2017-18, when there has been an increase in the number of Anganwadi Workers and Anganwadi Helpers and decrease in the number of CDPOs and Lady Supervisors. According to Table 12.7, the vacancy ratios in 2018-19 were — CDPO (28.3 percent), Lady Supervisors (29.0 percent), Anganwadi Workers (15.1 percent) and Anganwadi Helpers (18.2 percent).

Table 12.7 : Staffing Position in ICDS (2013-14 to 2018-19)

Year	Posts	CDPO	Lady Supervisor	Anganwadi Worker	Anganwadi Helper
No. of Sanctioned Posts		544	3288	91677	86237
2013-14	Working	504	2859	82177	78076
	Percentage of Vacant Post	7.4	13.0	10.4	9.5
No. of Sanctioned Posts		544	3288	91677	86237
2014-15	Working	458	2499	85936	80176
	Percentage of Vacant Post	15.8	24.0	6.3	7.0
No. of Sanctioned Posts		544	3288	91677	86237
2015-16	Working	458	2499	85944	80178
	Percentage of Vacant Post	15.8	24.0	6.3	7.1
No. of Sanctioned Posts		544	3288	114718	107603
2016-17	Working	442	2427	86800	80373
	Percentage of Vacant Post	18.7	26.2	24.3	25.3
No. of Sanctioned Posts		544	4210	114718	107603
2017-18	Working	442	2349	87287	80357
	Percentage of Vacant Post	18.8	44.2	23.9	25.3
No. of Sanctioned Posts		544	4210	114718	107603
2018-19	Working	390	2237	97347	88036
	Percentage of Vacant Post	28.3	29.0	15.1	18.2

Source : Directorate of ICDS, GoB

The budget provision for ICDS in 2018-19 was Rs. 1213.9 crore, which was 22.8 percent higher than Rs. 988.7 crore in 2017-18. Moreover, the funds released by the Central Government in 2017-18 and 2018-19 were more than the budgetary amount. One may also note that, in 2018-19, 92 percent of the fund released has been utilized, which reflects the judicious management of funds by the State Government. The details of the contribution of Central and State Government for ICDS in the last six years are given in Table 12.8.

Table 12.8 : Resource Utilisation in ICDS (2013-14 to 2018-19)

Year	Budget for ICDS Bihar (Rs. crore)	Funds Released by GoI (Rs. crore)	Expenditure (Rs. crore)	Fund Released as Percentage of Budget	Expenditure as Percentage of Fund Released
2013-14	1714.3	1153.5	1310.1	67.3	113.6
2014-15	2238.3	1281.5	1236.4	57.3	96.5
2015-16	1409.7	1062.2	983.4	75.3	92.6
2016-17	1494.1	987.3	893.5	66.1	90.5
2017-18	988.7	1075.2	940.4	108.7	87.5
2018-19	1213.9	1329.5	1119.9	84.7	92.2

Source : Directorate of ICDS, GoB

Scheme for Adolescent Girls (SAG)

Adolescence is a vital phase in the life of a woman. This stage is intermediary between childhood and adulthood and is the most important stage for mental, emotional and psychological well-being of the adolescent girls. The life-cycle approach for complete child development remains unaddressed, if adolescent girls are excluded from the developmental programmes aimed at human resource development. To address the needs of adolescent girls, Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG) or SABLA was launched in November, 2010, as a comprehensive intervention for adolescent girls in the age group of 11-19 years, with a special focus on out-of-school girls in 12 districts of Bihar. The scheme has now been scaled up to all the districts using existing Anganwadi Centres (AWCs) under ICDS with effect from April, 2018. It has now been renamed as Scheme for Adolescent Girls (SAG). The new scheme is also meant for girls of 11-14 years who are not going to school. With expansion of the scheme to all the districts of the country, the erstwhile Kishori Shakti Yojana (KSY) has been phased out. The key objective of the scheme is to facilitate, educate and empower adolescent girls so as to enable them to become self-reliant and well-aware citizens.

The scheme has a provision of funds from both Central and State Governments in the ratio of 50:50 for the nutritional component and 60:40 for non-nutritional component. At AWCs, supplementary nutrition of 600 kcal and 18-20 gms of protein (including micronutrient) are being provided as Take Home Ration to adolescent girls under this scheme. Further, Take-Home-Rations are being provided once in a month for 25 days costing Rs. 9.50 per day. In addition, out-of-school adolescent girls are also being provided other services, which include life skill education. The Rapid Reporting System (RRS), a web-based online monitoring of SAG was launched in January, 2018. The RRS facilitates the monitoring of the scheme and taking corrective measures by ensuring faster flow of information, accurate targeting of the beneficiaries and reduction of leakages in the scheme. In 2018-19, a sum of Rs. 12.71 crore was spent for SAG, out of which Rs 6.86 crore was the central share and Rs. 5.85 crore the state share.

Pradhan Mantri Matri Vandana Yojana (PMMVY)

PMMVY, earlier known as Maternity Benefit Scheme (MBS) or Indira Gandhi Matritva Sahyog Yojana (IGMSY), is a Centrally Sponsored Scheme under which the cost sharing ratio between the Central and State Government is 60:40. Under the scheme, maternity benefit of Rs. 5000 is provided in three instalments to eligible pregnant woman and lactating mother during the period of pregnancy and lactation. The first installment of Rs. 1000 is paid on early registration of pregnancy, within three months of last menstruation period (LMP); the second installment of Rs. 2000 is paid after six months of pregnancy and attending at least one ANC (Ante Natal Check-up); and finally, the third installment of Rs. 2000 is paid after delivery and completion of first round of child immunization. The eligible beneficiary also receives the cash incentive of Rs. 1000 towards maternity benefit under Janani Suraksha Yojana (JSY), subject to institutional delivery, so that a woman gets Rs. 6000 in total. In 2018-19, about Rs. 78.22 crore was spent under this scheme in the state.

National Nutrition Mission (NNM)

The Central Government has set-up the POSHAN Abhiyaan (National Nutrition Mission) which was launched on March 8, 2018 from Jhunjhunu in Rajasthan. With an overall budget of Rs. 9,046.17 crore (50 percent from the Central Government and 50 percent from International Bank for Reconstruction and Development-IBRD), the programme endeavours to reduce the level of

stunting, under-nutrition, anaemia and low birth weight of children. The programme has a focus on adolescent girls, pregnant women and lactating mothers, thus holistically addressing the challenge of malnutrition. Further, it aims to ensure service delivery by use of technology, and behavioural change through convergence. Further, it also lays down specific targets to be achieved across different monitoring parameters. To ensure a holistic approach, all the 36 states and Union Territories are to be covered under this programme in a phased manner over a three year period (2017-18 to 2019-20). Altogether 315 districts were covered in 2017-18, another 268 districts in 2018-19 and the remaining 235 districts will be covered in 2019-20. More than 10 crore women will be benefitted under this programme. The Mission targets to annually reduce stunting (by 2 percent), anaemia among young children, women and adolescent girls (by 3 percent), under nutrition (by 2 percent) and low birth weight (by 2 percent).

National Creche Scheme (NCS)

The National Creche Scheme (NCS) is being implemented as a Centrally Sponsored Scheme by the states with effect from January, 2017 to provide daycare facilities to the children of working mothers and other deserving women. The main features of the scheme are — (i) Daycare facilities to the children in the age group of 6 months to 6 years of working women who are employed for a minimum period of 15 days in a month or 6 months in a year, (ii) Facilities to be provided to 25 children in each crèche, (iii) Daycare facilities would include sleeping facilities, supplementary nutrition, health care inputs (immunisation, basic health monitoring and emergency medicines), early stimulation for children below 3 years, and pre-school education for 3-6 years old children, (iv) Crèche may charge families an amount of Rs. 20 per child per month for BPL families, Rs. 100 per child per month for families with income (both parents) upto Rs. 12,000 per month and Rs. 200 per child per month for families with income (both parents) above Rs. 12,000 per month. This will ensure better participation of the community and also increase the resources, which can be utilized for welfare of children and upgradation of crèche facilities. During 2019-20, an amount of Rs. 60.00 lakh as Central share and Rs. 30.00 lakh as State share have been earmarked for the scheme.

12.5 Drinking Water and Sanitation

The schools with adequate water, sanitation and hygiene facilities provide better environment for students and teachers. Such facilities should cater to all, including small children, girls of

menstruation age, and children with disabilities. Table 12.9 reveals that the percentage of elementary schools with drinking water facility has increased from 93.0 percent in 2011-12 to 99.0 percent in 2016-17. In 2011-12, the percentage of schools with boy's toilets was 70.3 percent; the corresponding figure for girl's toilet was lower at 52.2 percent. It is remarkable to note that the number of schools having toilet facility for boys had increased from 70.3 percent in 2011-12 to 97.8 percent in 2016-17. Similarly, there was remarkable increase in percentage of schools having girl's toilets, which increased from 52.2 percent in 2011-12 to 94.0 percent in 2016-17. The benefits of improved sanitation infrastructure, however, depends on availability of soap and water for handwash and on a latrine's general maintenance.

Table 12.9 : Drinking Water and Sanitation Facilities in Elementary Schools of Bihar (in percent) (2011-12 to 2016-17)

Facility Indicators	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Schools with Drinking Water	93.0	93.5	92.3	92.5	98.8	99.0
Schools with Boys' Toilet	70.3	71.5	80.1	79.8	95.1	97.8
Schools with Girls' Toilet	52.2	76.8	70.2	71.2	96.4	94.0

Source : DISE, GoI

12.6 Educational and Development Status

Education is a fundamental requirement for a democracy. In the broader sense, education is not limited to a classroom or school only. It is considered to be a lifelong process, where all the experiences, knowledge and wisdom that an individual acquires at different stages of life through different channels (formal, informal and incidental) are part of education. Moving on these lines, Sustainable Development Goal 4 (SDG4) seeks to ensure inclusive and quality education and promote lifelong learning opportunities for all by 2030. Five of the seven targets of SDG4 focus on quality education and learning outcomes. The Indian education system can be divided into three main categories: Elementary Education, Secondary Education and Higher Education, based on the age of students enrolled. These categories have been discussed in detail in Chapter 11 on Human Development. The present section describes about pre-school education and out of school children.

Literacy Rates

The literacy and level of education are basic indicators of development. The literacy rate of population is defined as 'the percentage of literates to the total population aged 7 years and

above'. As per 2011 census, the literacy rate in Bihar stood at 61.8 percent. However, female literacy rate has been much lower at 51.5 percent, compared to the male literacy rate (71.2 percent) in Bihar. It is certainly commendable that the increase in literacy rate is reasonably higher in case of females in all age groups and thus, the gender gap in literacy rate is gradually decreasing over the years. This gap came down from 26.6 percent in 2001 to 19.7 percent in 2011. The overall literacy rate among the children (age-group 7-18 years) stood at 79.1 percent. The gender gap observed between male (81.7 percent) and female (76.2 percent) for this age group is 5.5 percentage points in 2011 (Table 12.10).

Table 12.10 : Percentage of Literates by Age and Sex in Bihar (2001 and 2011)

Years	Age Group	7-9	10-14	07-18	7 and above
2001	Person	46.0	60.0	56.1	47.0
	Male	51.4	67.5	63.5	59.7
	Female	39.9	51.2	47.4	33.1
2011	Person	73.2	83.3	79.1	61.8
	Male	75.2	85.5	81.7	71.2
	Female	71.1	80.9	76.2	51.5

Source : Census 2001 and 2011

Pre-School Education (PSE)

Early childhood is defined as the period from birth to eight years of age, a period of rapid development of the brain and the years in which lifelong development of the child is rooted. The concept of Early Childhood Care and Education (ECCE) addresses a child's need for care, education, nutrition and health holistically, in consonance with a life cycle approach. It gives emphasis on developing the whole child, attending to his or her physical, social, emotional and cognitive needs. This establishes a solid and broad foundation for lifelong learning and wellbeing. The learning begins at birth and, as such, the very first goal to be achieved under 'Education for All' is ECCE. This has been included as a constitutional provision, which directs the states to provide ECCE to all the children till they are six years old. The ECCE services may be delivered through public, private or non-governmental channels. In the public sector, Integrated Child Development Scheme (ICDS) is the largest flagship programme imparting ECCE. As per Rapid Survey on Children, 2013-14, conducted by the Ministry of Women and Child Development in Bihar, 49.5 percent of the children aged 3-6 years were attending pre-

schools under ICDS, 10.4 percent were attending privately run pre-schools and a little more than one-third (35.2 percent) were not attending any pre-school. This sample size for the survey was 1.05 lakh households and 5630 AWCs. It is remarkable that, compared to 31.4 percent of children in urban areas, 51.8 percent were attending the pre-schools in rural areas. The study further reveals that about 93.3 percent of AWCs conducted PSE (Pre-School Education) sessions for 16 or more days in one calendar month. However, only 34.1 percent boys and 37.4 percent girls aged 36-71 months attended PSE for 16 or more days in one calendar month. Though the coverage of ICDS programme in Bihar is extensive, there is a need to evaluate how the pre-school education component is implemented by AWCs and also the factors responsible for some children being deprived of this facility.

Out of School Children (OOSC)

Envisioning the objective of Sarva Shiksha Abhiyan (SSA) of universalizing elementary education, it becomes imperative that all out-of-school children (OOSC) are brought into the sphere of elementary education. There has been substantial improvement in the coverage of elementary education in Bihar in terms of increased enrolment in the last decade. To assess the actual burden of out-of-school children, Habitation Mapping has been carried out in the state which collected information regarding presence of primary and upper primary schooling facility as per State Right To Education norms. Out of a total of 1,12,067 habitations, 1,08,747 (97.0 percent) are served by government or government aided primary schools, 3320 habitations (3.0 percent) are without primary schools, out of which 1524 habitations are eligible for setting up new primary schools as per the state norms. However, 1796 habitations still remain unserved and 331 children are out-of-schools. At the upper primary level, 1,10,020 habitations (98.2 percent) are served by government or government aided upper primary schools, 2035 habitations (1.8 percent) are without upper primary school, out of which 967 habitations are found eligible for construction of new upper primary schools. Further, there are 1068 unserved and ineligible habitations, in which 13934 children are attending nearby schools and 192 children are out of school.

In 2018-19, a total of 1.44 lakh OOSC in the age group of 6-13 years have been mainstreamed through different interventions. Out of these, 29.4 percent were SC, 13.8 percent were minority and only 3.0 percent were ST. The decrease in the number of total out-of-school children from

2.17 lakh in 2016-17 to 1.44 lakh in 2018-19 is the result of focused approach of the State Government (Table 12.11).

Table 12.11 : Number of Out of School Children in Bihar (2016-17 to 2018-19)

2018-19						
Category	6-10 years			11-13 years		
	Boys	Girls	Total	Boys	Girls	Total
ALL	51792	47966	99758	24402	19418	43820
SC	14442	13293	27735	7988	6568	14556
ST	1166	976	2142	1149	991	2140
Minority	6887	6269	13156	3679	3029	6708
2017-18						
Category	6-10 years			11-13 years		
	Boys	Girls	Total	Boys	Girls	Total
ALL	64607	59138	123745	36562	31346	67908
SC	18053	16634	34687	10821	9789	20610
ST	1278	1249	2527	1293	1245	2538
Minority	12572	11280	23852	7850	7059	14909
2016-17						
Category	6-10 years			11-13 years		
	Boys	Girls	Total	Boys	Girls	Total
ALL	76030	71758	147788	37256	31792	69048
SC	20393	19151	39544	11728	9873	21601
ST	1010	1042	2052	1247	1209	2456
Minority	15753	14872	30625	7359	6586	13945

Source : Bihar Education Project

The State Government has taken several initiatives to ensure that OOSC are brought within the mainstream of formal education. Some of these are :

Residential Schools/Hostels : Presently, 4 sanctioned residential schools are functional, 2 of them are in urban Patna and 2 in Jamui. The enrolment in hostels is 396, against the sanctioned number of 400. The hostels are being managed by Vidyalaya Shiksha Samiti (VSS) under the supervision of district level offices of SSA.

Residential Special Training : A total of 11,845 OOSC have been covered under residential special training against the target of 18,444, depending upon their age, social category and competence. A set of different bridge books and workbooks have been designed with the name of 'Koshish'. These books have been earmarked for different types of target group children.

Non-Residential Special Training : About 59,498 OOSC have been covered under non-residential special training.

Worksite Centre for Migrant Children : The children of migratory families, like families of brick kiln workers and stone crushers, either from the different locations of the districts of Bihar or from other states (West Bengal, Assam and Jharkhand) make a sizeable number. In 2017-18, a total of 1050 migratory children were enrolled at 51 worksite centres.

Teaching-Learning Materials for Special Training : The materials for special training have been developed by the State Government, with support from State Council of Education Research and Training (SCERT), Patna. The organisations involved in the development of study materials are — Bihar Education Project Council (BEPC), Vidya Bhawan Society, Mamidipudi Venkatarangaiya (MV) Foundation and Pratham Foundation. Some education experts and teachers were also involved.

Survey of OOSC : In order to maintain a Balpanji Register (Child Register) in every school, the survey of children in the age-group 0-14 years (including OOSC) has been carried out across all schools of the state. The data of OOSC have been computerised and the districts are using Balpanji data for formulation of any policy related to children.

Muhim : A programme for controlling drop-outs with support of various stakeholders and peer groups has been initiated. Some NGOs have united with other reputed NGOs and BEP to provide special training to these OOSC.

12.7 Status of Child Protection

The child protection is about keeping children safe from an actual risk or perceived risk to their lives or childhood. It is a collective responsibility to protect children from abuse or neglect, prevent impairment of their health and development, and to ensure their overall growth. The

development, care and protection of children need to be ensured by facilitating their access to learning, nutrition, and all required institutional support.

The practice of child labour prevents children from exercising their rights to development, proper standards of living and protection from abuse and neglect. As per Census 2011, Bihar has the highest proportion of child population (48 percent) among all states of India and the second highest number of child workers. There are as many as 19 districts in the state that have a child labour population in excess of 1.00 lakh. These districts are — Araria, Bhagalpur, Bhojpur, Darbhanga, Gaya, Katihar, Madhubani, Muzaffarpur, Nalanda, Nawada, West Champaran, East Champaran, Patna, Samastipur, Saran, Sitamarhi, Siwan and Vaishali. It is estimated that more than a third of all child labourers in Bihar are employed in agriculture and allied sectors. In rural areas, children take a major load of agricultural works, including weeding and sowing, which adversely affect their attendance in schools during agricultural seasons. Under extreme economic distress, children are forced to forego educational opportunities and take up work. The absence of effective implementation of Child Labour Prohibition and Regulation Act often results in children being employed in exploitative jobs under very poor work conditions. Improving the quality of education and making special training as well as making bridge course available for child workers are the key focus areas of the State Government to ensure that child labourers join the schools.

Integrated Child Protection Scheme (ICPS)

In 2009-10, the Ministry of Women and Child Development of the Central Government had introduced the Integrated Child Protection Scheme (ICPS) with the objective of creating a safe and secured environment for children in distress. The flagship scheme aims at improving the wellbeing of children in difficult circumstances, as also reducing their vulnerabilities to situations and actions that lead to abuse, exploitation, abandonment and separation of children from their families. The State Government has signed an MOU with the Union Ministry of Women and Child Development in April 2010 for implementation of ICPS in the state. Subsequently, the State Government has constituted the State Child Protection Society (SCPS), a state-level body to implement, coordinate and monitor the implementation of the scheme. The SCPS comes under the Directorate of Social Welfare of the State Government.

Under ICPS, financial assistance is provided by the State Governments for children, including those in the 18-21 years age-group, to help them during their transition to independent life. The

services include housing facilities, vocational training, help to gain employment, counselling, and stipend. The financial norms under ICPS were revised with effect from April, 2014. The key features of the revised scheme included increased maintenance grant for children in protection homes, from Rs. 750 to Rs. 2000 per child per month. This has been further enhanced to Rs. 2160 per child per month with effect from November, 2017. The expenditure on Juvenile Law Council and Child Welfare Society under this scheme is borne by the Central and State Governments in the ratio of 35:65. Apart from this, for other programmes run by the State Government under ICPS, the cost is shared between the Central and the State Government in the ratio of 60:40. For children stay homes run by non-government organisations (NGO), the expenditure share of the three institutions are : centre (60 percent), State (30 percent) and NGO (10 percent).

State Adoption Resource Authority

The State Adoption Resource Authority functions as the executive arm of the State Government for promotion, facilitation, monitoring and regulation of the child adoption programme in the state. The agency helps the orphans who got separated from their parents in getting new parents, either national or international, through an adoption policy. This agency establishes co-ordination between the Central and State Governments and helps in monitoring different adoption agencies located in various districts. Adoption is carried out through 21 Specialised Adoption Agencies running under ICPS. In the recent past, 100 children were unified with their families in 2015-16, 90 children in 2016-17, and 164 children in 2017-18.

Children's Home

Presently, 33 Children's Homes are functioning in different districts of the state to support and rehabilitate destitute, abandoned and orphaned children. Out of these 33 homes, 22 are meant for boys and 11 for girls. Till date, a total of 6540 children have been provided with residential facilities in different Children's Homes.

Parvarish

Parvarish is an ambitious scheme of the State Government under which there is a provision of an allowance of Rs. 900 per month for children in the age group 0-6 years and Rs. 1000 per month for children in the age group 6-18 years to facilitate their upbringing. This scheme has been revised now to include those children who are homeless, orphan or living with their relatives.

Also, children or their parents suffering from HIV, leprosy and cancer are covered under this scheme. The provision of Rs. 1000 has also been extended to all children, including those who are in the age group of 0-18 years. This is a state scheme and 15,461 children have been provided protection from destitution and extreme vulnerability so far under the scheme. Along with this, Child Friendly Courts are also being established by the Department of Social Welfare to provide a safe and secured environment to the children, who are victims of sexual abuse and whose cases are being heard under the provisions of the Protection of Children from Sexual Offences (POCSO) Act, 2012.

Bihar Prohibition of Child Marriage Rule, 2010

According to the Prohibition of Child Marriage Rule 2010, marriage of a girl below 18 years and a boy below 21 years is considered a 'child marriage', which is a cognizable offence. While the child marriage has a long term negative consequences, both for boys and girls, its adverse effects are more on girls. This includes early pregnancy, maternal and neonatal mortality, educational setbacks, lower employment prospects, and exposure to violence and abuse. All these lead to negative physical and psychological outcomes for children.

According to NFHS data, the prevalence of child marriage in Bihar amongst girls in the age group of 15-19 years was 25.0 percent in 2005-06 (NFHS-III) and 12.2 percent in 2015-16 (NFHS-IV), registering a substantial decline of 12.8 percentage points. The child marriage frequency in rural and urban Bihar is 12.8 percent and 8.3 percent, respectively. The trend of data clearly indicates that the State Government's efforts towards prevention of child marriage through different welfare programmes are yielding positive results.

12.8 Status of Child Participation

The voice of children in decision-making in all situations, whether formal or informal, should be ensured. It will help in getting the perspective of the children and decisions can be made keeping in mind their best interests. In this perspective, participation is recognized by United Nations Convention on the Rights of the Child (UNCRC) as one of the important rights of a child. The participation of the community along with the children should also be ensured to promote active citizenship for children and enhance the accountability of the system. The government and civil society together should engage with children and communities in sensitising them about child rights and empowering them to raise their voice and demand entitlements. Presently, both State

and Central Government have provisioned schemes for child's participation in decision-making process to ensure their active involvement in any planning process. Some of these schemes are :

Bal Sansads : The Bal Sansads have been set up in all the elementary schools of Bihar to ensure participation of children in education. A committee with 12 students as its members, is constituted in every school to assist the school management, which provides the students with a platform for expressing their views and developing life skills. Similarly, Meena Manchs have been established in all the upper primary schools of the state.

Integrated Child Protection Scheme : This is an important programme aimed at strengthening the protection of children, under which there is a provision for representation of children in Child Protection Committees, constituted at various levels. The child representative in the committee is expected to bring in specific requirements and concerns related to protection of children. Bihar has recently taken the initiative to constitute Child Protection Committees in all the districts.

Bal Samvad Adalat : This is a unique process initiated only in Bihar. The initiative proved to be highly effective in disposal of minor offences of juvenile delinquents, based on consultations with children through a dialogue. The process is facilitated by Juvenile Justice Boards in a few districts of Bihar. Similarly, children are being provided with platforms such as Meena Manch in schools of Bihar to develop leadership qualities.

Rashtriya Kishor Swasthya Karyakram (RKSK) : The programme aims to provide opportunities for participation of adolescent girls in group activities. Under this scheme, the concepts of '*Sakhi*' and '*Saheli*' have been developed as groups of adolescent girls. This scheme is part of the Centrally sponsored scheme called Scheme for Adolescent Girls (SAG).

APPENDIX

Table A 12.1 : District-wise Child Population in Bihar (2011)

(Number in '000)

District	0-6			0-14			0-18		
	T	M	F	T	M	F	T	M	F
Patna	943.6	494.2	449.3	1104.0	993.3	2097.2	2583.1	1372.4	1210.7
Nalanda	518.7	268.7	250.0	589.7	541.8	1131.5	1350.6	709.9	640.7
Bhojpur	459.2	239.4	219.8	541.3	490.9	1032.2	1262.4	668.5	593.9
Buxar	295.1	152.6	142.5	343.0	313.3	656.3	800.2	422.0	378.2
Rohtas	506.8	262.5	244.3	592.9	547.9	1140.9	1376.4	722.1	654.3
Kaimur	299.3	154.1	145.2	340.4	314.7	655.1	784.9	412.3	372.6
Gaya	783.1	399.4	383.6	883.0	833.5	1716.5	2058.2	1063.2	995.0
Jehanabad	198.8	103.5	95.3	230.5	211.0	441.4	527.3	276.4	250.9
Arwal	127.8	65.9	61.9	144.3	134.0	278.3	331.9	173.3	158.6
Nawada	393.5	202.3	191.2	458.2	427.4	885.5	1066.3	553.2	513.1
Aurangabad	455.4	234.3	221.1	518.1	486.5	1004.6	1207.2	627.0	580.2
Saran	681.1	353.7	327.4	800.1	746.4	1546.5	1896.5	989.4	907.1
Siwan	551.4	284.2	267.2	658.9	625.3	1284.2	1589.8	817.1	772.7
Gopalganj	449.5	230.0	219.5	523.6	501.3	1024.9	1251.1	638.7	612.4
W. Champaran	776.0	397.4	378.6	855.6	796.8	1652.4	1938.4	1020.5	917.9
E. Champaran	1018.3	526.8	491.5	1130.1	1029.0	2159.1	2522.2	1346.1	1176.0
Muzaffarpur	845.3	441.3	404.0	967.2	879.8	1847.0	2220.8	1183.4	1037.3
Sitamarhi	663.2	343.6	319.7	742.6	671.9	1414.5	1663.4	888.3	775.1
Sheohar	128.7	66.7	62.0	142.9	129.1	272.0	319.4	170.8	148.5
Vaishali	601.9	316.1	285.8	695.9	627.7	1323.5	1586.1	850.6	735.5
Darbhanga	725.5	375.7	349.8	826.5	755.9	1582.4	1891.9	1003.8	888.1
Madhubani	810.5	418.6	391.9	932.4	865.4	1797.8	2132.2	1122.3	1009.9
Samastipur	797.4	414.6	382.8	907.1	831.4	1738.5	2054.1	1092.7	961.3
Begusarai	546.0	284.5	261.4	633.2	576.2	1209.4	1434.6	766.7	667.9
Munger	229.9	119.6	110.2	267.6	240.4	507.9	619.3	332.8	286.5
Sheikhpura	121.6	62.7	58.9	136.4	125.9	262.3	310.3	162.8	147.5
Lakhisarai	188.2	98.1	90.2	212.9	193.6	406.6	484.7	257.6	227.1
Jamui	324.5	165.9	158.6	360.2	334.9	695.0	828.7	434.2	394.5
Khagaria	340.9	177.0	163.9	377.1	340.8	718.0	839.8	451.2	388.6
Bhagalpur	546.4	281.9	264.4	620.9	570.3	1191.2	1432.2	762.4	669.8
Banka	375.3	193.2	182.1	417.7	385.7	803.4	951.2	505.1	446.0
Saharsha	387.5	200.5	187.0	425.0	383.5	808.5	936.2	501.1	435.1
Supaul	437.4	225.0	212.4	488.8	455.4	944.2	1092.7	575.6	517.1
Madhepura	404.6	209.6	195.0	445.9	407.6	853.5	986.7	525.1	461.6
Purnia	656.5	336.0	320.6	712.4	668.6	1381.0	1625.4	850.9	774.5
Kishanganj	346.9	176.0	170.9	371.5	360.0	731.5	873.6	446.2	427.4
Araria	577.9	295.3	282.6	627.3	590.5	1217.8	1423.6	746.1	677.5
Katihar	620.3	316.4	303.9	671.6	636.6	1308.2	1544.0	806.9	737.1
Bihar	19134.0	9887.2	9246.7	21697.1	20024.1	41721.2	49797.1	26248.9	23548.2

Source : Census 2011, Registrar General of India

Table A 12.2 : District-wise and age-wise Sex Ratios of Population in Bihar (2011)

(Females per 1000 males)

District	All	0-6 Years	0-14 years	0-18 years	7-18 Years
Patna	897	909	900	882	867
Nalanda	922	931	919	903	886
Bhojpur	907	918	907	888	872
Buxar	922	934	914	896	875
Rohtas	918	931	924	906	892
Kaimur	920	942	925	904	881
Gaya	937	960	944	936	921
Jehanabad	922	922	915	908	899
Arwal	928	940	929	916	901
Nawada	939	945	933	927	917
Aurangabad	926	944	939	925	914
Saran	954	926	933	917	912
Siwan	988	940	949	946	949
Gopalganj	1021	954	957	959	961
W. Champaran	909	953	931	899	865
E. Champaran	902	933	911	874	836
Muzaffarpur	900	915	910	877	853
Sitamarhi	899	930	905	872	836
Sheohar	893	929	903	869	831
Vaishali	895	904	902	865	841
Darbhanga	911	931	915	885	857
Madhubani	926	936	928	900	878
Samastipur	911	923	917	880	853
Begusarai	895	919	910	871	843
Munger	876	922	898	861	827
Sheikhpura	930	940	923	906	884
Lakhisarai	902	920	909	882	859
Jamui	922	956	930	908	879
Khagaria	886	926	904	861	820
Bhagalpur	880	938	918	878	844
Banka	907	943	923	883	846
Saharsa	906	933	902	868	825
Supaul	911	944	932	898	869
Madhepura	929	930	914	879	845
Purnea	921	954	939	910	882
Kishanganj	950	971	969	958	949
Araria	921	957	941	908	876
Katihar	919	961	948	913	883
Bihar	918	935	923	897	874

Source : Census 2011, Registrar General of India

Table A 12.3 : District-wise Percentage of Children under Five Years of Age Suffering from Malnutrition in Bihar (2015-16)

District	Stunted		Wasted		Underweight	
	Rural	Total	Rural	Total	Rural	Total
Patna	51.4	43.5	27.2	28.5	49.2	43.3
Nalanda	55.7	54.1	23.7	24.3	50.0	50.2
Bhojpur	44.3	43.5	24.5	26.0	46.0	47.2
Buxar	45.4	43.9	20.5	19.6	43.1	41.2
Rohtas	48.1	48.5	19.4	19.9	44.7	45.1
Kaimur	55.0	53.8	21.6	21.4	49.1	48.1
Gaya	53.5	52.9	26.6	25.6	54.0	53.1
Jehanabad	54.7	52.1	18.5	19.6	49.3	47.1
Arwal	51.1	50.2	29.2	30.7	53.8	54.0
Nawada	50.4	48.4	21.3	21.4	47.8	45.9
Aurangabad	48.8	48.3	25.1	24.8	48.0	47.6
Saran	46.0	46.1	17.7	18.1	40.3	40.4
Siwan	38.2	37.9	15.3	15.0	32.2	31.6
Gopalganj	36.0	35.6	16.7	16.5	30.2	30.5
W. Champaran	45.9	43.6	22.2	21.7	41.7	39.1
E. Champaran	47.2	47.2	17.9	18.0	40.7	40.8
Muzaffarpur	48.6	47.9	17.5	17.5	42.3	42.3
Sitamarhi	58.1	57.3	15.7	15.8	47.9	47.7
Sheohar	53.1	53.0	15.3	14.8	42.9	42.8
Vaishali	53.6	53.7	15.5	15.1	41.9	41.3
Darbhanga	49.2	49.0	16.8	16.6	40.9	41.1
Madhubani	51.9	51.8	19.2	19.1	45.6	45.4
Samastipur	49.2	49.2	18.1	18.4	40.4	41.3
Begusarai	44.6	44.9	20.4	18.4	40.7	39.1
Munger	48.4	46.6	21.4	21.5	44.8	43.7
Sheikhpura	47.5	46.4	28.9	28.9	52.0	51.7
Lakhisarai	51.2	50.6	21.2	20.1	47.6	47.3
Jamui	46.7	45.9	29.1	29.4	48.1	47.2
Khagaria	50.5	49.8	17.0	17.0	42.9	42.4
Bhagalpur	48.6	46.6	24.8	23.1	44.5	40.8
Banka	50.3	49.6	26.0	26.0	49.1	48.5
Saharsa	44.8	43.9	23.7	24.0	45.2	44.4
Supaul	47.7	48.1	21.4	20.9	43.2	43.4
Madhepura	52.7	51.8	24.4	24.2	50.0	49.2
Purnea	53.9	52.1	20.6	20.8	48.3	47.0
Kishanganj	46.7	46.9	22.9	22.8	45.3	45.4
Araria	49.0	48.4	23.0	22.8	46.7	45.4
Katihar	50.4	49.2	21.7	20.7	46.2	45.1
Bihar	49.3	48.3	20.8	20.8	44.6	43.9

Source : NFHS 4,GoI

CHAPTER - XIII

ENVIRONMENT AND CLIMATE CHANGE

Earth provides enough to satisfy every man's needs, but not every man's greed.

— Mahatma Gandhi

Abstract

As one of the fastest growing economies, Bihar faces the challenge of realigning its growth with the goals of environmental sustainability. The forestry and logging sectors contributed to 1.6 percent of the Gross State Value Addition (GSVA) in Bihar during 2013-14 to 2018-19. In 2019, the recorded forest area in Bihar was around 6877 sq.kms., nearly 7.3 percent of the total geographical area. The Soil Organic Carbon contributes to 61.4 percent of the total forest carbon stock of Bihar, followed by above ground mass (27.2 percent). In 2019, the state experienced much higher than average rainfall of 968.3 mms. from the south-west monsoons. The Department of Environment, Forest, and Climate Change functions as the nodal agency, overseeing the activities and policies relating to environmental stability, ecological balance, and protection of wildlife and biodiversity in the state. The Bihar State Agroforestry Policy of 2018 seeks to protect and stabilize ecosystems, promote resilient cropping systems, and enhance employment of rural households through expansion of agroforestry. Jal-Jeevan-Hariyali is a flagship programme of the State Government which is intended to tackle issues related to climate change and environmental degradation. The total expenditure for the execution of various schemes under this campaign is estimated to be Rs. 24,524 crore during 2019-20 to 2021-22. The Bihar State Action Plan on Climate Change (Bihar-SAPCC) aims to focus on strategies relating to agriculture, water resources, forests and biodiversity, and disaster management.

Introduction

Since the adoption of the Sustainable Development Goals (SDG) by the United Nations in 2015, there is an emphasis that economic prosperity and environmental resource management must go hand in hand for achieving long-run sustainable growth. Globally, the environmental resources are under stress due to increasing population, urbanization and economic growth and, the state of Bihar is no exception to this scenario. As one of the fastest growing economies of the country, with a double-digit growth in Gross State Domestic Product (GSDP) in recent years, Bihar faces

the challenge of realigning its growth in line with the goals of environmental sustainability. More than 85 percent of the population in Bihar live in rural areas and are dependent on climate-sensitive sectors, such as agriculture, fisheries, and forestry for their livelihood. As the demand for natural resources are growing for multiple uses, the quantity and quality of natural resources such as water, soil, air, etc., are of serious concern.

The proper management of the environment has been a priority for the State Government to ensure efficient, equitable and sustainable use of the natural resources. In this regard, the State Government is undertaking sustained efforts to work towards the agenda, pushed by the SDGs to achieve a universal and integrated development path, encompassing economic progress, social equity, and environmental sustainability. The Department of Environment, Forest, and Climate Change of the State Government functions as the nodal agency, overseeing the activities and policies relating to environmental stability, ecological balance, and protection of wildlife and biodiversity in the state.

13.1 Climatic Profile of Bihar

As a land-locked state, Bihar is located in the eastern region of the country, lying between West Bengal in the east and Uttar Pradesh in the west, bounded by Nepal in the north and Jharkhand in the south. Situated at 52.7 meters above the sea level, its geographical co-ordinates are 24⁰ 20' N to 27⁰ 31' N latitude and 83⁰ 19' E to 88⁰ 17' E longitude. Bihar is bounded by the Himalayan foothills, the Indo-Gangetic Plains, the Vindhyan Plateau and the small Gondwana basin, extending for 483 kms from east to west and 345 kms from north to south. The river Ganga flows from west to east, dividing the state into two unequal halves. A snapshot of the physiographic features of the agro-climatic zones in Bihar is presented in Table 13.1. Three distinct agro-climatic zones of the state are — (i) North-West Zone, consisting of 13 districts with an annual rainfall of 1040-1450 mms., and sandy loam soil, (ii) North-East Zone, covering 8 districts with an annual rainfall ranging between 1200 and 1700 mms. and consisting of loam or clay loam soil, and (iii) South Zone, which has 17 districts, filled with soil of sandy loam, loam, clay or clay loam and receiving an annual rainfall of 990-1300 mms. The North-East Zone receives the highest amount of annual precipitation and more than 80 percent of it during the kharif season. The climate in Bihar can be characterized as humid and subtropical with three distinct seasons — summer, rainy and winter. The state faces extreme differences in temperature during the summer and winter months. The annual average temperature ranges between 8⁰C in cold winter months during December-February to 38⁰C in hot summer months during April-June.

Table 13.1 : Features of the Agro-Climatic Zones in Bihar

Agro-climatic Zone	Soil	pH	Organic Matter (%)	Available Nitrogen (kg/ha)	Available Phosphorous (Kg/Ha)	Available Potash (Kg. /Ha.)	Average Rainfall (mms.)	Temperature (°C)	
								Max	Min
North-West	Sandy loam, Loam	6.5-8.4	0.2-1.0	150-350	5-50	100-300	1040-1450 (1245)	36.6	7.7
North-East	Sandy loam, Clay loam	6.5-7.8	0.2-1.0	150-300	10-35	150-250	1200-1700 (1450)	33.8	8.8
South-East and South-West	Sandy loam, Clay loam, Loam, Clay	6.8-8.0	0.5-1.0	200-400	10-100	150-350	990-1240 (1115)	37.1	7.8

Source : Department of Agriculture, GoB

13.2 Water Resources

The state of Bihar is endowed with abundant surface and groundwater resources, enough to meet the growing demands of different sectors such as agriculture, industry, household, and environment. Though water is considered as a renewable resource because of regular replenishment by the rain spells, the growing population and indiscriminate development is inducing stress on the natural water ecosystems. Bihar is also prone to excessive flooding, where more than 70 percent of the population are living under the constant threat of floods.

Rainfall

The climate change is impacting the natural resources and altering the patterns of precipitation around the globe. In a predominantly agrarian state such as Bihar, insufficient or excess rainfall leading to drought or flood-like situations has implications for agricultural production. In recent years, the monsoon patterns have become unpredictable, thereby affecting the sowing cycles, cropping decisions and crop yields. Besides agriculture, the variations in rainfall are also likely to impact the quality and flow of river water, affecting the livelihoods of the fishing communities. As such, inadequate and untimely rainfall with high variability has adverse effect on water table, agricultural production, livelihood, and survival of the vulnerable population. The temporal patterns of annual average rainfall in the state during four different seasons for the period 2001-2018 and the first nine months of 2019 are presented in Table 13.2.

During 2018-19, Bihar recorded an annual rainfall of 780 mms, which is lesser than the long-run average rainfall of 987.2 mms (2001-18). In 2018-19, 88.4 percent of the rains in Bihar were due to the south-west monsoons, occurring during the four months of June to September, while only 11.6 percent of the rains were due to the hot weather rain and north-west rain. The state experienced unprecedented rainfall of 968 mms during the south-west monsoons in 2019-20, which is much higher the long-run average of 839.4 mms. Overall, the annual rainfall received in Bihar varied between 677 mms (2010) to 1506 mms (2007), showing substantial variability in the rainfall pattern.

Table 13.2 : Season-wise Annual Rainfall (2001-2019)

(Rainfall in mm)

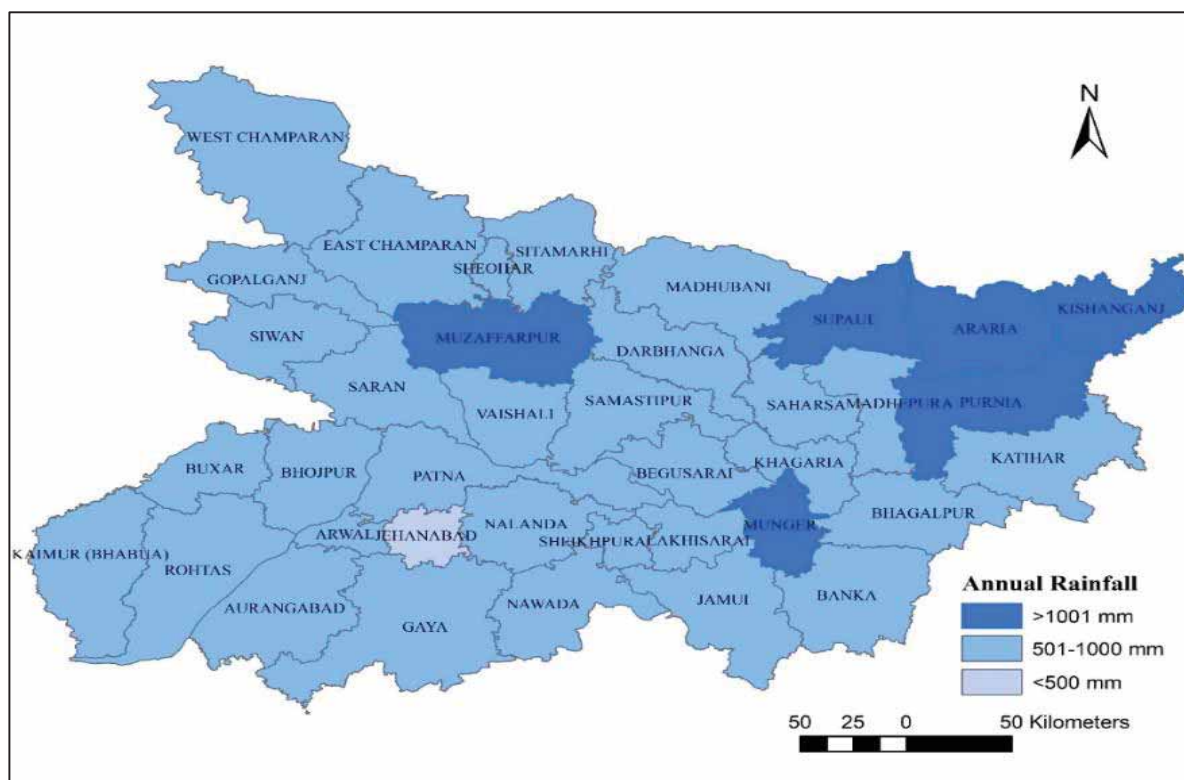
Year	Winter Rain	Hot-Weather Rain	Southwest Monsoon	Northwest Monsoon	Annual
2001	20.9 (145.2)	86.7 (114.4)	908.2 (108.2)	192.2 (333.8)	1208 (122.4)
2002	48.9 (339.7)	66.8 (88.2)	896.9 (106.9)	33.2 (57.7)	1045.8 (105.9)
2003	19.2 (133.4)	93 (122.7)	767.6 (91.4)	128.9 (223.8)	1008.7 (102.2)
2004	23.7 (164.6)	41.4 (54.6)	906.1 (107.9)	60.1 (104.4)	1031.3 (104.5)
2005	0.1 (0.7)	89.5 (118.1)	777.6 (92.6)	30.2 (52.4)	897.4 (90.9)
2006	0.1 (0.7)	90 (118.8)	925.9 (110.3)	27.8 (48.3)	1043.7 (105.7)
2007	28.3 (196.6)	76.4 (100.8)	1360 (162)	40.5 (70.3)	1506.1 (152.6)
2008	30.6 (212.6)	61.8 (81.6)	1084 (129.1)	19.3 (33.5)	1196 (121.1)
2009	0.1 (0.7)	98.2 (129.6)	699.2 (83.3)	71.1 (123.5)	868.6 (88)
2010	0.7 (4.9)	49.3 (65.1)	584.4 (69.6)	43.4 (75.4)	677.9 (68.7)
2011	5.2 (36.1)	79.4 (104.8)	1028 (122.5)	0.5 (0.9)	1113.1 (112.8)
2012	11.2 (77.8)	31.3 (41.3)	704.2 (83.9)	51.2 (88.9)	797.9 (80.8)
2013	17.1 (118.8)	73.8 (97.4)	518.4 (61.8)	164.3 (285.3)	773.6 (78.4)
2014	33.3 (231.3)	96.1 (126.8)	788.3 (93.9)	41.9 (72.8)	959.6 (97.2)
2015	11.7 (81.3)	89.3 (117.8)	690.7 (82.3)	4.3 (7.5)	796 (80.6)
2016	7.5 (52.1)	72.6 (95.8)	936.9 (111.6)	54.5 (94.6)	1071.6 (108.5)
2017	0.4 (2.8)	103.1 (136.1)	843.2 (100.5)	47.6 (82.7)	994.4 (100.7)
2018	0.1 (0.7)	65.3 (86.2)	689.6 (82.2)	25.5 (44.3)	780.4 (79.0)
2019 (Up to Sept.)	28.2	56.9	968.3	41.0	1094.4
Average (2001-2018)	14.4	75.8	839.4	57.6	987.2

Note : Figures in parentheses denote actual rainfall as the percentage of long run rainfall

Source : Directorate of Economics and Statistics, GoB

Besides temporal variations, the rainfall distribution is also uneven across the districts of Bihar, as they fall under different agro-climatic zones. The agroclimatic Zones I (North-West) and II (North-East) form the wet zones in the state, which receive higher proportion of rainfall compared to the dry zone in the southern part of the state. The spatial variations of season-wise annual rainfall are shown in Table A13.1 (Statistical Appendix). The district-wise distribution of annual rainfall for the year 2018-19 is depicted in Chart 13.1. During 2018-19, Kishanganj received the highest annual rainfall of 1522 mms., while the lowest rainfall was observed in the district of Jehanabad (403 mms.). Out of the 38 districts, 15 districts received higher rainfall than the state's annual rainfall of 780 mms.

Chart 13.1 : District-wise Rainfall Distribution in Bihar (2018-19)



Source : Directorate of Economics and Statistics, GoB

In case of south-west monsoons, there is no uniform distribution of rain as it varies from 1581 mms. in Kishanganj to 545.4 mms. in Arwal during 2019. The leading districts in terms of rainfall in 2019 belonged to the northern plains — Kishanganj (1581 mms), Siwan (1403 mms), and Araria (1310 mms). In stark contrast, the districts of Sheikhpura (580 mms) and Arwal (545.4 mms), situated in the southern part of Bihar, recorded the least amount of south-west rain spells. The lower intensity of rainfall in the southern districts is a cause of concern for groundwater level, compared to the northern counterparts. Such extreme rainfall variability in the state over time and space leads to low crop yields and the risk of crop failures in both flood and drought-prone areas. The efforts of the State Government to combat the challenges of rainfall variability, recurring flood, and droughts is evident through investments made for better management of watersheds, construction of reservoirs and embankments.

Surface Water Resource

Other than the rain water, the river systems in the state form the basis for surface water. Bihar is endowed with a favourable river system, comprising the river Ganga, its tributaries, and other rivers, some of which are perennial and others seasonal in nature. The alluvial tract in the

northern part of Bihar and some areas in the south have enough water available throughout the year. The river basins in Bihar are known to be fertile, with rich alluvial soil, and provide habitat for different varieties of fish. The river Ganga has a total length of 445 kms. In Bihar, it has a catchment area of 5473 sq.kms. Among other rivers in Bihar, the Ghaghra river system is the biggest one with a catchment area of about 1.27 lakh sq.kms. and having a total length of 1116 kms (Table 13.3). Three other major rivers in terms of catchment area are — Kosi (74,030 sq.kms.), Sone (70,228 sq.kms.) and Gandak (40,553 sq.kms.). The river basins of Punpun, Kosi, Bagmati, and Mahananda are responsible for causing extreme flooding in the state, leading to loss of lives and property. Despite housing fifteen river basins, there has been a growing concern in the state over the quality of river water due to depleting water levels of subsurface resources.

Table 13.3 : Status of Rivers in Bihar

List of Rivers	Origin	Total Length (km)	Catchment Area (km ²)	Seasonality
Ghaghra	Tibet	1116	127950	Perennial
Kosi	Tibet	260 (Bihar)	74030	Perennial
Sone	Amarkantak (M.P.)	784	70228	Perennial
Gandak	Tibet	260 (Bihar)	40553	Perennial
Bagmati	Nepal	589	14384	Perennial
Mahananda	Darjeeling (W. Bengal)	376	13308	Perennial
Burhi Gandak	Chanpatia (Bihar)	320	12021	Perennial
Kamla	Nepal	328	7232	Perennial
Ganga Stem	Gangotri (Uttarakhand)	2525 (445 Bihar)	5473 (Bihar)	Perennial
Harohar	Jharkhand	53	14173	Seasonal
Punpun	Palamau (Jharkhand)	235	9026	Seasonal
Karmnasha	Kaimur	192	7792	Seasonal
Chandan	Deoghar Hills	118	4093	Seasonal
Kiul	Khajuri (Jharkhand)	181	3050	Seasonal
Badua	Chakai Plateau	130	2215	Seasonal

Source : Lal, 2005, Annexure 2.5 of the Report of the Expert Committee on Impact of Interlinking of Rivers in Bihar and the Report of Second Bihar State Irrigation Commission Vol-5, Part-I

In order to ensure availability of water in drought-prone and rainfed areas, and achieve greater equity in the distribution of water, the programme of inter-linking of the rivers has been launched in India. The details of the distribution of river basin in Bihar are presented in Table 13.4. As per the estimates, the basin-wise average water potential was the highest in the Gandak Baya river basin (47,350 MCM), followed by the Kosi river basin (41,615 MCM). On the other hand, the

lowest water potential was observed in the river basin of Kiul (710 MCM). The total area of the Ghaghra-Mahi basin is 1,30,458 sq. kms., with a catchment area of 5503 sq. kms. However, the area outside the state has not been considered for water potential, because it has been assumed that the upper states may completely divert their water.

Table 13.4 : Details on River Basin in Bihar

River Basin	Catchment Area (km ²)	Area (km ²)	Water Potential (MCM)
Ghaghra-Mahi	5503 (in Bihar)	130458	1639
Gandak Baya	43574	43574	47350
Burhi Gandak	12021	12021	4040
Bagmati-Adhwara	14384	14384	7265
Kamla-Balan	7232	7232	3249
Kosi	74030	74030	41615
Mahananda	13308	13308	5895
Karmnasha	7792	7792	1245
Sone	70228	70228	7709
Kao-Gangi	4129	4129	884
Punpun	9026	9026	2253
Kiul	3050	3050	710
Harohar	14173	14173	3300
Badua	2215	2215	737
Chandan	4093	4093	1491
Ganga Stem	5473 (in Bihar)	5473	2793

Note : MCM = Million Cubic Metre

Source : Lal, 2005, Annexure 2.5 of the Report of the Expert Committee on Impact of Interlinking of Rivers in Bihar

Quality of River Water

In recent years, the quality of river water has become a major environmental concern. Owing to population growth and growing demand of water (for irrigation, industry, domestic consumption and other purposes), the water levels of subsurface resources have depleted. Secondly, there has also been a decline in flow of river waters. These two factors together have affected the quality of river water. Under the national water quality monitoring programme, the Central Pollution Control Board is monitoring the quality of river water. The polluted river stretches over a

continuous sequence and are monitored along a number of parameters, such as dissolved oxygen, pH level, conductivity, bio-chemical oxygen demand (BOD), and faecal and total coliform. The limits of the parameters to measure the quality of river water for different states are presented in Table 13.5. In Bihar, the organic pollution measured in terms of bio-chemical oxygen demand (BOD) count was less than 3 mg/l. It is important to maintain adequate levels of dissolved oxygen in the water to protect aquatic life. The level of dissolved oxygen was in the range of 2.1 mg and 10.2 mg per l.

Table 13.5 : State-wise River Water Quality (2017)

State	Dissolved Oxygen (mg/l)		pH		Conductivity (μ mho/ cm)		Bio-chemical Oxygen Demand (mg/ l)		Faecal Coliform (MPN/ 100 ml)		Total Coliform (MPN/ 100 ml)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Andhra Pradesh	1.8	8.6	6.2	8.5	210	34100	0.5	62.4	2	200	65	2400
Bihar	2.1	10.2	6.4	8.84	62	975	0.5	21	1100	16X10⁶	2100	16X10⁶
Chhattisgarh	5.2	8.6	7.09	8.5	27	588	0.2	3.8	NIL	64	22	900
Gujarat	0.2	9.2	5.9	9.52	50	67670	BDL	206	BDL	550	BDL	1600
Haryana	2.3	12.4	6.7	8.95	196	3720	BDL	290	33	34000	49	16X10 ⁵
Himachal Pradesh	2.1	11.4	6.45	8.68	27	3680	0.1	160	BDL	350	2	920
Jharkhand	2.5	9	6.4	8.5	120	402	0.2	10	140	260	730	1500
Madhya Pradesh	0.8	16.8	6.5	8.9	12	15244	0.3	430	BDL	900	BDL	1600
Maharashtra	0.5	8.8	6.1	8.92	23	69610	2	250	BDL	1600	4	1800
Odisha	0.3	14.3	6.3	8.5	77	52860	0.1	130	2	54X10 ⁴	2	16X10 ⁵
Punjab	0.6	8.8	6.9	8.42	136	2346	BDL	1299	43	34X10 ⁴	46	47X10 ⁴
Rajasthan	2.5	6.6	6.94	8.75	110	2100	0.8	11.5	2	150	2	460
Tamil Nadu	0.3	9.8	6.38	9.24	38	78500	0.4	325	2	22X10 ⁵	12	35X10 ⁵
Telangana	0.2	8.4	6.25	8.87	78	2130	BDL	60	NIL	210	20	2000
Uttar Pradesh	0.2	12	6.3	8.96	14	3770	1.2	120	8	92X10 ⁵	17	16X10 ⁶
Uttarakhand	0.2	10.6	6.7	8.26	63	1600	BDL	64	2	94000	NIL	920000
West Bengal	0.3	12.5	6.3	9.29	32	24650	0.6	23	700	24X10 ⁵	280	30X10 ⁵

Source : Central Pollution Control Board (2017)

Groundwater Resource in Bihar

The water collected in aquifers, the porous layers of the underground formations, form the basis of groundwater resource. The groundwater acts as major reservoir, especially in the drought

prone regions of Bihar, making the water available for agricultural purposes. In recent years, the dependency on groundwater resources has been rising on account of rapid economic and urban growth. Such growths lead to a decline in groundwater table, discharges and water quality. The impending water crisis is particularly severe, especially for food supply and healthy life of the poor. The Central Ground Water Board and the State Ground Water Board provide the estimates of the groundwater resources in the state. As per the estimates of the Dynamic Groundwater Resources of India (2017), the annual groundwater extraction for all uses in Bihar has been estimated to be around 29 bcm, while the total annual groundwater recharge is about 31.4 bcm. Bihar's stage of groundwater extraction stands at 45.8 percent, which is lesser than the all-India average of 63.3 percent (Table 13.6).

Table 13.6 : State-wise Contribution of Recharge Components in Annual Groundwater Recharge (2017)

(In bcm)

State	Annual Groundwater Recharge	Total Natural Discharges	Annual Extractable Groundwater Resource	Stage of Groundwater Extraction (%)
Andhra Pradesh	21.22	1.07	20.15	44.15
Bihar	31.41	2.43	28.99	45.76
Chhattisgarh	11.57	1.00	10.57	44.43
Gujarat	22.37	1.12	21.25	63.89
Haryana	10.15	1.01	9.13	136.91
Himachal Pradesh	0.51	0.05	0.46	86.37
Jharkhand	6.21	0.52	5.69	27.73
Karnataka	16.84	2.05	14.79	69.87
Kerala	5.77	0.56	5.21	51.27
Madhya Pradesh	36.42	1.95	34.47	54.76
Maharashtra	31.64	1.74	29.90	54.62
Odisha	16.74	1.17	15.57	42.18
Punjab	23.93	2.35	21.58	165.77
Rajasthan	13.21	1.22	11.99	139.88
Tamil Nadu	20.22	2.02	18.20	80.94
Telangana	13.62	1.25	12.37	65.45
Uttar Pradesh	69.92	4.60	65.32	70.18
Uttarakhand	3.04	0.15	2.89	56.83
West Bengal	29.33	2.77	26.56	44.60
All-India	431.86	39.16	392.70	63.33

Note : 1. The Ground Water resources assessment as on 2013 has been considered for West Bengal
2. bcm = Billion Cubic Metres

Source : Central Ground Water Board (2019)

The district-wise groundwater recharge in Bihar for the year 2017 is presented in Table A13.2 (Statistical Appendix). The assessment of groundwater recharge in 2017 shows that the groundwater recharge from rainfall during monsoon was higher at 19.83 bcm, compared to that of non-monsoon recharge (3.14 bcm). The leading districts in groundwater recharge from rainfall during monsoon season are — West Champaran (0.99 bcm), East Champaran (0.92 bcm) and Rohtas (0.88 bcm). The districts of Sheikhpura (0.14), Arwal (0.13 bcm) and Sheohar (0.12 bcm) had low levels of recharge from rainfall during monsoon. Overall, the annual extractable groundwater resource was the highest in the district of West Champaran (1.61 bcm). Among the purposes of annual groundwater extraction, the highest was observed in the category of irrigation (10.78 bcm), followed by domestic purposes (1.83) for the state as whole. The leading districts for extraction of groundwater for irrigation purposes were Muzaffarpur (0.62 bcm), Gaya (0.59 bcm) and Katihar (0.56 bcm), accounting for nearly 16.4 percent of the total extraction during 2017. The stage of groundwater extraction, expressed as percentage, is the ratio of annual groundwater draft and net annual groundwater availability (Table 13.6). The overdraft of groundwater resource has been the highest in the district of Jehanabad (95.7 percent), while the least has been in Araria (19.6 percent). It is alarming to note that nearly 19 districts had the stage of groundwater extraction higher than that of the state's average of 45.8 percent. The dependency of irrigation on groundwater resource is one of the leading causes for depletion of water tables.

Quality of Groundwater Resource

Since the launch of the National Water Policy of 2012, there has been a growing emphasis on the need to maintain quantity and quality of groundwater resources. The state-wise details on the districts affected with groundwater contamination are presented in Table 13.7. The groundwater contamination refers to the presence of certain pollutants, such as fluoride, nitrate, arsenic, iron, lead, cadmium and chromium in excess of the prescribed limits in water. In Bihar, the commonly observed contaminants include fluoride, nitrate, arsenic, and iron, which are harmful for drinking purposes. The State Government is making efforts to minimize the contamination and over-exploitation of groundwater through the enactment of Groundwater Act, 2006 which aims to regulate and control the over-exploitation of groundwater in the state. Towards this, various awareness programmes and water management trainings are being undertaken in the state.

Table 13.7 : State-wise Details on Affected Districts with Ground Water Contamination

State	Salinity (EC above 3000 micro mhos/ cm)	Fluoride (above 1.5 mg/l)	Nitrate (above 45 mg/l)	Arsenic (above 0.01 mg/l)	Iron (above 1mg/l)	Lead (above 0.01 mg/l)	Cadmium (above 0.003 mg/l)	Chromium (above 0.05 mg/l)
Andhra Pradesh	11	11	13	3	7	NA	NA	NA
Bihar	NA	13	10	23	19	NA	NA	NA
Chhattisgarh	NA	13	12	1	4	1	1	1
Gujarat	21	19	21	12	6	NA	NA	NA
Haryana	15	20	19	15	17	17	7	1
Himachal Pradesh	NA	NA	6	1	NA	NA	NA	NA
Jammu & Kashmir	NA	2	4	3	6	3	1	NA
Jharkhand	NA	12	11	1	6	1	NA	NA
Karnataka	29	29	22	2	22	NA	NA	NA
Kerala	4	5	11	NA	15	2	NA	1
Madhya Pradesh	16	39	50	8	42	16	NA	NA
Maharashtra	20	17	30	NA	20	19	NA	NA
Odisha	7	25	28	1	21	NA	NA	1
Punjab	9	19	20	10	9	6	8	10
Rajasthan	30	33	33	1	33	4	NA	NA
Tamil Nadu	23	19	27	9	2	3	1	5
Telangana	7	9	10	1	8	2	1	1
Uttar Pradesh	9	30	46	29	15	10	2	4
West Bengal	4	7	2	9	15	6	2	2
All-India	212	335	386	153	301	93	24	30

Source : Ministry of Water Resources, River Development & Ganga Rejuvenation, GoI

Wetland

As one of the most productive ecological systems, the wetlands provide diverse ecosystem goods and services — assisting in erosion control, replenishment of land, regulation of life of habitats, and providing recreational and educational benefits. Owing to urbanization, land use changes, changes in catchment area, pollution from industry and households, anthropogenic pressures, encroachments, tourism, and overexploitation of natural resources, the wetlands are under substantial stress. In a flood-prone state like Bihar, wetlands are extremely beneficial, as they help in controlling flood by regulating the hydrological process. The different climatic zones and topography offer cooperation for development of wetland habitats. The state-wise distribution of wetlands in terms of their number and area is presented in Table 13.8.

Table 13.8 : Wetlands within the Recorded Forest Area/Green Wash (2019)

(Area in hectare)

State	Inland Wetland (Natural)		Inland Wetland (Manmade)		Coastal Wetland		Wetland (<2.25 ha)		Total Wetland	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
Andhra Pradesh	99	9802	559	19956	213	42297	303	303	1174	72358 (1.9)
Bihar	72	2573	50	1256	0	0	163	163	285	3992 (0.6)
Chhattisgarh	101	39987	1182	21996	0	0	2415	2415	3698	64398 (1.2)
Gujarat	560	37958	1677	44454	681	1127652	611	611	3529	1210675 (39.9)
Haryana	16	1700	27	150	0	0	35	35	78	1885 (3.3)
Himachal Pradesh	50	6227	14	1945	0	0	49	49	113	8221 (0.6)
Jharkhand	249	10100	551	5566	0	0	862	862	1662	16528 (0.9)
Karnataka	123	15344	633	36488	21	26	1261	1261	2038	53119 (1.7)
Kerala	143	10073	76	12944	0	0	140	140	359	23157 (2.0)
Madhya Pradesh	249	71116	2655	85821	0	0	5636	5636	8540	162573 (1.8)
Maharashtra	686	29947	4257	73062	432	10382	3446	3446	8821	116837 (2.1)
Odisha	393	13389	795	40227	170	8242	2769	2769	4127	64627 (1.5)
Punjab	46	1446	37	1586	0	0	36	36	119	3068 (3.3)
Rajasthan	284	21519	1275	28064	4	4495	2263	2263	3826	56341 (1.7)
Tamil Nadu	248	8494	743	19432	104	16865	428	428	1523	45219 (2.1)
Telangana	59	13086	654	14796	0	0	357	357	1070	28239 (1.1)
Uttar Pradesh	792	31828	660	9497	0	0	899	899	2351	42224 (3.1)
Uttarakhand	95	39007	10	15006	0	0	116	116	221	54129 (2.1)
West Bengal	353	220751	863	5542	239	202123	10060	10060	11515	438476 (32.7)
All-India	7017	814521	16859	444563	4029	1499496	34561	34561	62466	2793141 (3.8)

Note : 1. RFA = Recorded Forest Area

2. Figures in bracket denote wetland as percentage of RFA

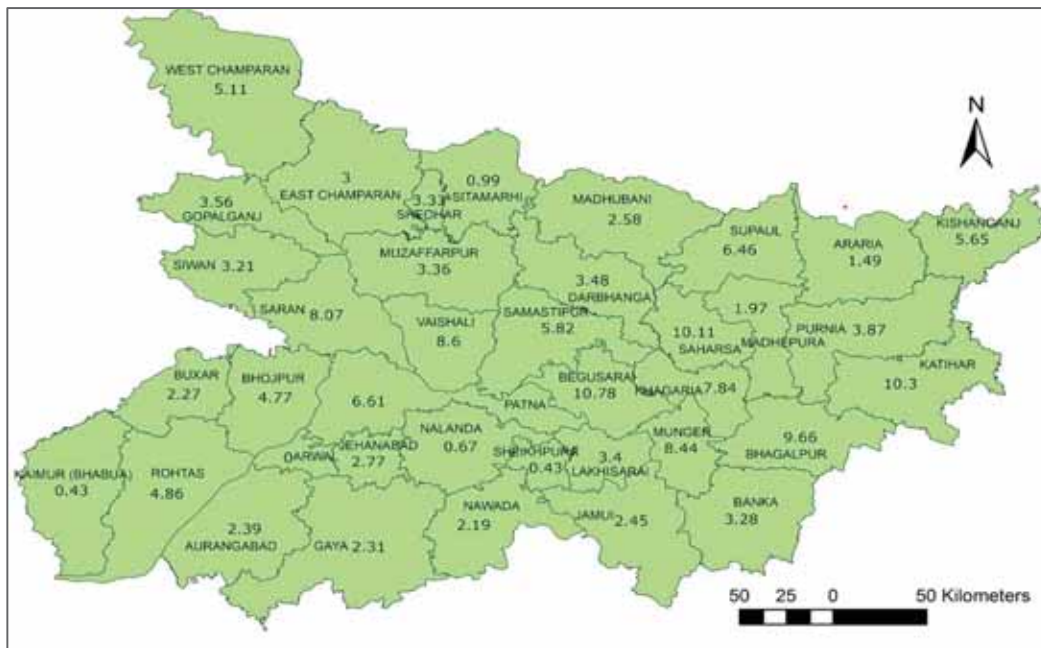
Source : Report of the Forest Survey of India (2019)

As per the India Forest Report of 2019, a total of 62,466 wetlands within the Recorded Forest Area (RFA) have been mapped in the country, covering an area of 27,93,141 hectares (Table 13.8). The area estimates of wetlands reveal that Bihar has about 285 wetlands, with a total area of 3992 hectares, accounting for nearly 0.6 percent of the total recorded forest area of the state. Out of this, the area under natural inland wetlands has been the highest at 2573 hectares, accounting for 64.5 percent of the total area of wetlands in the state. In terms of the proportion of the recorded forest area, Gujarat had the highest proportion of wetlands at 39.9 percent, followed by West Bengal (32.7 percent).

The district-wise area under wetlands in Bihar has been given in Table A 13.3 (Statistical Appendix). There is a large scale variation in the spread of wetlands across the districts. Across all categories of wetlands, the water spread area was higher in the post-monsoon period, compared to the pre-monsoons at the state level. In terms of the contribution of the total water spread in the state, the highest was observed in the district of Katihar, both during pre-and post-monsoon. The wetland area as percentage of the total geographical area across the districts has been depicted in Chart 13.2. The district of Begusarai has about 10.8 percent of the district’s geographical area as wetlands. The districts of Begusarai, Katihar, Saharsa, Bhagalpur and Vaishali together constituted nearly 50 percent of the total wetland area in the state. The Central Government has passed the Wetlands Conservation and Management Rules, 2017 to enable better management of wetlands. Recognising that water resource is needed for sustenance of life, biodiversity and development, the State Government is committed to minimize soil and water losses, revive the traditional systems of water storage, preserve wetlands, and launch programmes for groundwater recharge in over-exploited areas.

Chart 13.2 : District-wise Wetland Map of Bihar

(percent to total geographical area)



Source : Department of Environment, Forest and Climate Change, GoB

13.3 Forest Resources

As an integral part of the natural resources and ecological systems, forests serve a multitude of purposes — regulating the hydrological cycle, helping in soil conservation, providing forest

products, offering habitat to the wildlife, flora, and fauna, and opportunities for recreation. Bihar is endowed with rich deciduous natural sal forests, which are spread over the southern districts of Kaimur, Rohtas, Aurangabad, Gaya, Jamui, Munger, and Banka. In addition, the moist deciduous forest occupies the district of West Champaran in the northern plains. The share of forestry and logging sector in Gross State Value Addition (GSVA) in Bihar during 2013-14 to 2018-19 is presented in Table 13.9. Overall, the forestry and logging sectors accounted for 1.6 percent of the Gross State Value Addition (GSVA) in Bihar during 2013-14 to 2018-19. Within the agriculture and allied sectors, the contribution of forestry and logging stood at 8.2 percent of the Gross Value Added in 2018-19, increasing from 7.3 percent in 2013-14.

Table 13.9 : Share of Forestry and Logging in Agriculture GSVA (2013-14 to 2018-19)

(Rs. in Crore) (at constant prices)

Sector	2013-14	2014-15	2015-16	2016-17	2017-18 (P)	2018-19 (Q)
Crops	37107 (62.4)	35254 (59.4)	35330 (58.2)	39530 (58.6)	41458 (57.6)	39853 (55.0)
Livestock	14008 (23.5)	15359 (25.9)	16281 (26.8)	17559 (26.0)	19298 (26.8)	20922 (28.9)
Forestry and Logging	4330 (7.3)	4218 (7.1)	4353 (7.2)	5533 (8.2)	5671 (7.9)	5948 (8.2)
Fishing and Aquaculture	4071 (6.8)	4518 (7.6)	4772 (7.9)	4793 (7.1)	5536 (7.7)	5670 (7.8)
Agriculture, Forestry and Fishing	59516 (100.0)	59349 (100.0)	60735 (100.0)	67414 (100.0)	71963 (100.0)	72393 (100.0)

Note : 1. Data of 2017-18 is of Provisional estimates and of 2018-19 is Quick Estimates
2. Figures in parentheses indicate share in Gross Value Addition in Agriculture and Allied Sectors
Source : Directorate of Economics and Statistics, GoB

Area under Forests

The legally notified areas of forest as per the records of the government are classified as the Recorded Forest Area (RFA). This consists of the Reserved Forest, the Protected Forest, and the Unclassed Forests, as defined under the provisions of the Indian Forest Act 1927 or the State Acts. Unlike the forest cover, the recorded forest areas do not have the actual forest canopy cover on the ground. The distribution of recorded forest area across major states of India for 2019 is presented in Table 13.10. In 2019, the recorded forest area in Bihar was around 6877 sq. kms., which is nearly 7.3 percent of the total geographical area of the state. This share is much lesser than the all-India average of 23.3 percent. Among major states, Uttarakhand has the highest share of recorded forests at 71.1 percent, while the lowest recorded forest area is observed in Haryana (3.5 percent). With regard to the protected forests, Bihar's area stood at 6183 sq. kms. (6.6 percent of the state's geographical area).

Table 13.10 : Recorded Forest Areas (RFA) in Selected States of India (2019)

(Area in sq. km)

State	Geographical Area (GA)	Recorded Forest Area (RFA) (in different categories)			Total RFA	Percent of GA
		Reserved Forest	Protected Forest	Unclassed Forests		
Andhra Pradesh	162968	31959	5069	230	37258	22.9
Bihar	94163	693	6183	1	6877	7.3
Chhattisgarh	135192	25782	24036	9954	59772	44.2
Gujarat	196244	14373	2886	4388	21647	11.0
Haryana	44212	249	1158	152	1559	3.5
Himachal Pradesh	55673	1898	33130	2005	37033	66.5
Jharkhand	79716	4387	19185	33	23605	29.6
Karnataka	191791	28690	3931	5663	38284	20.0
Kerala	38852	11309	—	—	11309	29.1
Madhya Pradesh	308252	61886	31098	1705	94689	30.7
Maharashtra	307713	49546	6733	5300	61579	20.0
Odisha	155707	36049	25133	22	61204	39.3
Punjab	50362	44	1137	1903	3084	6.1
Rajasthan	342239	12475	18217	2045	32737	9.6
Tamil Nadu	130060	20293	1782	802	22877	17.6
Telangana	112077	20353	5939	612	26904	24.0
Uttar Pradesh	240928	12071	1157	3354	16582	6.9
Uttarakhand	53483	26547	9885	1568	38000	71.1
West Bengal	88752	7054	3772	1053	11879	13.4
All-India	3287469	434853	218924	113642	767419	23.3

Source : India State of Forest Report, 2019

Unlike the recorded forest areas, the forest cover includes all tree patches with a crown density of more than 10 percent, covering an area of 1 hectare or more without any binding to its legal status. The estimates of the forest cover for major states of India as per the assessment of the India State Forest Report, 2019 are given in Table 13.11. With respect to the area under forest cover, Madhya Pradesh has the largest forest cover at 77,482 sq. kms., accounting for nearly 10.9 percent of the total forest cover in the country. The lowest forest cover was observed in Haryana at 1602 sq. kms. (0.2 percent). The forest cover of Bihar (7306 sq. kms.) accounted for only 1 percent of the country's total forest area. Based on the crown density, the forests are classified as — Very Dense Forest (VDF) having a crown density of more than 70 percent, Moderately Dense Forest (MDF) with a crown density between 40 to 70 percent, and Open Forest (OF) with a

crown density of 10 to 40 percent. Out of the total forest cover in Bihar, the proportion was the highest for open forests, accounting for 50.5 percent of the total forest cover.

Table 13.11 : Forest Cover in the Major States of India (2019)

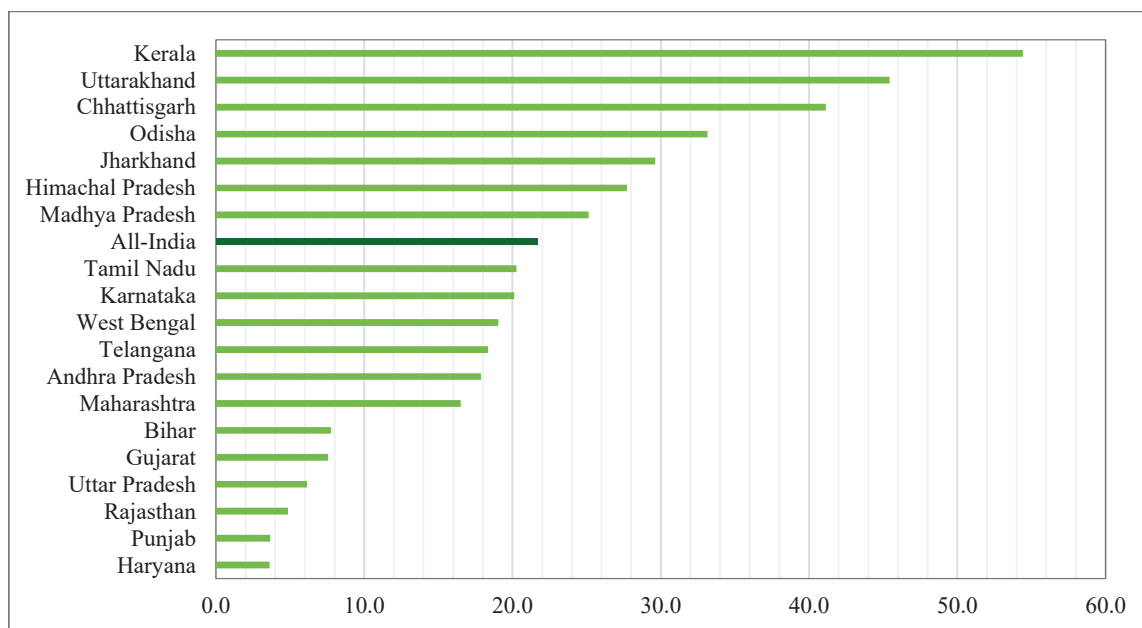
(Area in sq. km)

State	Geographical Area (GA)	2019 Assessment				Forest cover as percent of Geographical Area	
		VDF	MDF	OF	Total Forest Cover	2019	2017
Andhra Pradesh	162968	1994	13938	13205	29137	17.9	17.3
Bihar	94163	333	3280	3693	7306	7.8	7.8
Chhattisgarh	135192	7068	32198	16345	55611	41.1	41.1
Gujarat	196244	378	5092	9387	14857	7.6	7.5
Haryana	44212	28	451	1123	1602	3.6	3.6
Himachal Pradesh	55673	3113	7126	5195	15434	27.7	27.1
Jharkhand	79716	2603	9687	11321	23611	29.6	29.5
Karnataka	191791	4501	21048	13026	38575	20.1	19.6
Kerala	38852	1935	9508	9701	21144	54.4	52.3
Madhya Pradesh	308252	6676	34341	36465	77482	25.1	25.1
Maharashtra	307713	8721	20572	21485	50778	16.5	16.5
Odisha	155707	6970	21552	23097	51619	33.2	33.0
Punjab	50362	8	801	1040	1849	3.7	3.6
Rajasthan	342239	78	4342	12210	16630	4.9	4.8
Tamil Nadu	130060	3605	11030	11729	26364	20.3	20.2
Telangana	112077	1608	8787	10187	20582	18.4	18.2
Uttar Pradesh	240928	2617	4080	8109	14806	6.2	6.1
Uttarakhand	53483	5047	12805	6451	24303	45.4	45.4
West Bengal	88752	3019	4160	9723	16902	19.0	19.0
All-India	3287469	99278	308472	304499	712249	21.7	21.5

Source : India State of Forest Report, 2019

Chart 13.3 presents the forest cover as percent of state's geographical area in 2019 as per the estimates of the India State Forest Report. In terms of the share in state's geographical area, the highest share was observed in Kerala with 54.4 percent of the state's geographical area as forest cover. Bihar's forest cover as percent of geographical area stood at 7.8 percent, which is lesser than that of the national average of 21.7 percent.

Chart 13.3 : Forest Cover as percentage of State's Geographical Area (2019)



Source : India State of Forest Report, 2019

The area under forest and tree cover in Bihar for the period 2011 to 2019 is presented in Table 13.12. As per the estimates of the India State of Forest Report 2019, the tree cover constitutes tree patches outside the recorded forest area, exclusive of forest cover and those patches which are less than the minimum mappable area (1 hectare). The total tree cover in the state has been estimated to be 2003 sq. kms., accounting for 2.1 percent of the state's geographical area. From the distribution of forest cover over the period 2011-2019 in Bihar, as given in the Table 13.12, it can be seen that the total forest cover has marginally increased from 6845 sq. kms. in 2011 to 7306 sq. kms. in 2019. This notable increase has been possible due to the afforestation efforts of the State Government and people in general. The forest cover in 2019 accounts for nearly 7.8 percent of the geographical area of the state. The total forest and tree cover together constituted

Table 13.12 : Forest and Tree Cover in Bihar (2011 to 2019)

Particulars	(in sq. km)				
	2011	2013	2015	2017	2019
Tree Cover	2369 (2.5)	2164 (2.3)	2182 (2.3)	2263 (2.4)	2003 (2.1)
Forest Cover	6845 (7.3)	7291 (7.7)	7288 (7.7)	7299 (7.8)	7306 (7.8)
Forest and Tree Cover	9214 (9.8)	9455 (10.0)	9470 (10.1)	9562 (10.2)	9309 (9.9)

Note : Figures in parentheses denote share in state geographical area
Source : Department of Environment, Forest and Climate Change, GoB

about 9309 sq. kms. in 2019, which is about 9.9 percent of the total geographical area of the state. It has shown an increase of 95 sq. kms. between 2011 and 2019. The National Forest Policy of 1988 aims at bringing 33 percent of the total geographical area of the country under forest and tree cover. The Agroforestry Policy of 2018 of the State Government envisages a steady increase in tree cover in coming years.

The area under different types of forest in Bihar is given in Table 13.13. Out of the total forest cover, nearly 50.5 percent of them are open forests, followed by moderately dense forest at 44.9 percent in 2019. There has been an increase in the area under very dense forest over the period 2011-2019. Chart 13.4 presents the classification of forest areas in Bihar according to different types of forest during 2011 to 2019.

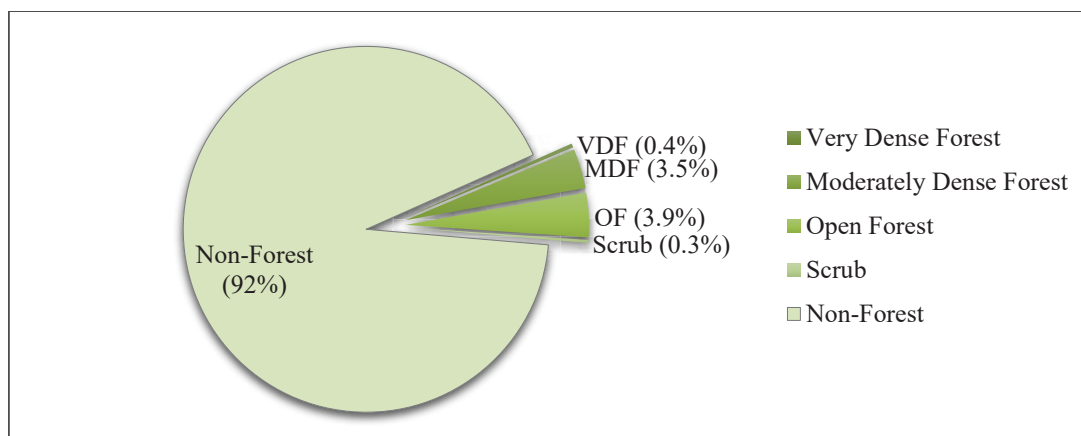
Table 13.13 : Area under different types of Forest (2011 to 2019)

(Area in Sq. km)

Type of Forest	2011	2013	2015	2017	2019
Very Dense Forest	231	247	248	332	333
Moderately Dense Forest	3280	3380	3376	3260	3280
Open Forest	3334	3664	3664	3707	3693
Total	6845	7291	7288	7299	7306

Note : Figures in parentheses indicate percentage to total geographical area
 Source : Department of Environment, Forest and Climate Change, GoB

Chart 13.4 : Classification of Forest Area in Bihar (2019)



Source : Department of Environment, Forest and Climate Change, GoB

The classification of districts based on forest cover as percentage of total geographical area into three categories (less than 10 percent, between 10-21 percent, and above 21 percent) is given in a district map in Chart 13.5. The districts of Kaimur, West Champaran, Rohtas, Jamui and Gaya

together accounted for 53.0 percent of the total forest cover in the state during 2019. Clearly, the forest cover is denser in the southern parts of Bihar.

Chart 13.5 : District-wise Forest Cover in Bihar (2019)



Source : Department of Environment, Forest and Climate Change, GoB

The distribution of forest cover across the districts for the years 2017 and 2019 as per the estimates of the India State of Forest Report is given in Table A 13.4 (Statistical Appendix). Kaimur has the highest forest cover in the state at 1056.4 sq. kms., while the lowest was in Jehanabad, with no forest. Among the types of forests, the district of West Champaran houses the largest very dense forest, which has a crown density cover above 70 percent. In terms of open forest, which refers to a crown density cover of 10 to 40 percent, Kaimur was the leading district, accounting for 531.3 sq. kms. (14.4 percent of total forest cover). With respect to share in district’s geographical area, Kaimur accounted for the highest share at 31.4 percent, followed by Jamui (20.9 percent), and Nawada (20.6 percent).

Carbon Stock

Increasing deforestation and burning of fossil fuels leading to global warming have become a serious environmental concern. As per the report of the Intergovernmental Panel on Climate Change (IPCC), deforestation accounts for nearly 17 percent of global greenhouse gas emissions. One of the ways to offset such effects is to have adequate green cover, which will help manage surface temperatures and help balance the climate system. In this context, the carbon stocks form an intrinsic component of the forest ecosystem, as the carbon absorbs the atmospheric carbon

dioxide and assimilate it into biomass. According to the Good Practices Guidance for Land Use, Land-use Change and Forestry (2003), the forests are considered to have carbon in five pools — above ground mass (tree trunk, branches, leaves, climbers, shrubs), below ground mass (root system), deadwood, litter, and soil organic carbon (SOC). The living portion of biomass carbon is categorized in two pools, the above ground biomass and below ground biomass. The SOC includes organic carbon in mineral and organic soils to a specific depth. The carbon stock across different pools during 2017 and 2019 for Bihar is presented in Table 13.14. The table reveals that Bihar has a maximum carbon stock of 55,239 thousand tonnes in 2019, which was slightly lower than 55,397 thousand tonnes in 2017.

Table 13.14 : Forest Carbon Stock in Bihar (2017 and 2019)

('000 tonnes)

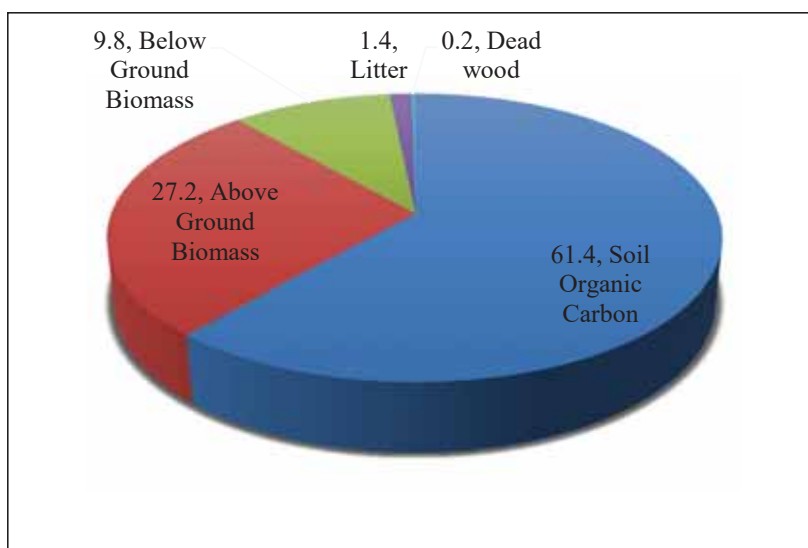
Component	Carbon Stock in Forest		Percentage change in Carbon Stock
	2017	2019	
Above Ground Biomass (AGB)	19063 (26.12)	15007 (20.54)	-21.3
Below Gross Biomass (BGB)	6707 (9.19)	5428 (7.43)	-19.1
Dead wood	138 (0.19)	127 (0.17)	-8.0
Litter	625 (0.86)	746 (1.02)	19.4
Soil Organic Carbon (SOC)	28864 (39.55)	33931 (46.44)	17.6
Total	55397 (75.9)	55239 (75.61)	-0.3

Note : Figures in parentheses indicate per hectare stock in tonnes
Source : India State of Forest Report (Various Issues)

Chart 13.6 presents the forest carbon stock in different pools in 2019. The maximum per hectare carbon stock was contained in soil organic carbon (SOC) at 46.44 tonnes per hectare, followed by the carbon above ground biomass at 20.54 tonnes per hectare in 2019. The SOC contributes to 61.4 percent of the total forest carbon stock of Bihar, followed by above ground mass (27.2 percent). The dead organic matter consists of the pool of deadwood and litter, and it had a carbon stock of 0.17 tonnes per hectare, accounting for only 0.2 percent of the total carbon stock in Bihar. An increase of 5067 tonnes of forest carbon stock in soil organic carbon was found in 2019 compared to the estimates for 2017. This increase is crucial, as the soil organic carbon would assist in improving the water-holding capacity of the soil, thereby minimizing the vulnerability to drought conditions.

Chart 13.6 : Forest Carbon Stock in Different Pools in 2019

(Percent)



Source : India State of Forest Report (2019)

Diversification of Forest Area

The increasing demand for forest resources due to growing urbanization, increasing population, and developmental activities such as expansion of agriculture, industries, construction of roads etc. have led to depletion of forest resources. Table 13.15 presents the data on diversion of forest land for different purposes. As per the estimates of the concerned Department, during the period 2010-11 to 2018-19, around 155 projects have been undertaken in Bihar, where 1819.68 hectares of forest land has been converted for different purposes, such as construction of roads, laying of pipelines, development of rail and irrigation projects, and other uses.

Table 13.15 : Diversification of Forest Land for Different Purposes during 2010-11 to 2018-19

Nature of use/converted land	Number of Projects	Area diverted to Non-forest use (in hectare)
Road	60	1541.57
Electricity	33	145.06
Railway	3	50.42
Irrigation	1	60.41
Approach path for petrol pumps	53	1.72
Pipeline	2	5.31
Others	3	15.20
Total	155	1819.68

Source : Department of Environment, Forest and Climate Change, GoB

Forest Fire

Amongst other factors, forest fires are one of the major reasons for degradation of forests and loss of biodiversity. The occurrence of forest fires cannot be predicted in advance, and their initiation and spread are influenced by weather conditions. They not only affect the physical resources of the natural environment, but disrupt the global carbon cycle as well, leading to variations in temperature. Given that a large number of poor households depends on forest resources for their livelihood, either directly or indirectly, forest fires can unsettle the vulnerable population. The forest fires pose a threat to the forest wealth, flora, and fauna, and disturb the biodiversity and ecology and pollute the environment.

Table 13.16 : Division-wise Forest Fire Incidents (2005-06 to 2018-19)

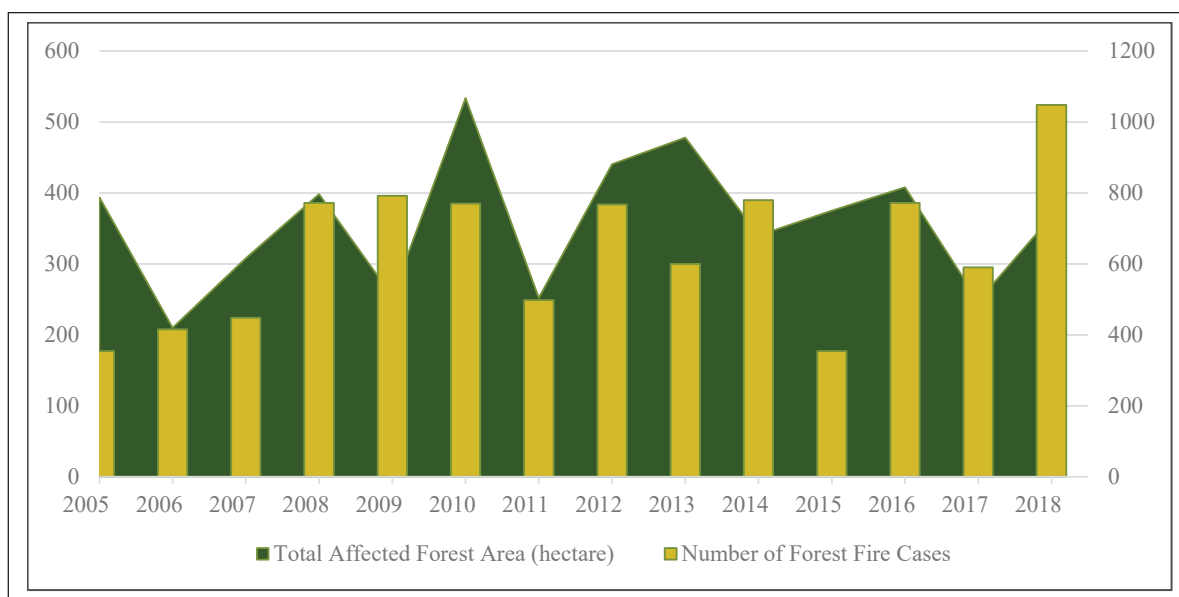
Year	Number of Incidents										Burnt Area (ha)
	Rohtas	Kaimur	VTR-1	Banka	VTR-2	Gaya	Jamui	Munger	Nalanda	Total	
2005-06	0	0	54	0	81	35	1	6	0	177	788.2
2006-07	13	0	141	0	43	4	0	7	0	208	420.0
2007-08	4	0	143	0	61	7	0	9	0	224	616.1
2008-09	0	2	175	1	133	70	0	5	0	386	796.9
2009-10	12	11	263	0	97	7	0	6	0	396	508.8
2010-11	34	35	222	5	64	5	11	4	5	385	1067.7
2011-12	22	0	158	0	57	3	5	1	3	249	504.4
2012-13	15	8	247	0	104	2	3	2	3	384	881.2
2013-14	10	6	191	0	79	6	4	1	3	300	956.3
2014-15	0	6	292	0	82	6	1	3	0	390	680.5
2015-16	0	8	73	3	82	9	2	0	0	177	750.3
2016-17	13	34	137	6	148	15	16	16	1	386	816.1
2017-18	19	34	179	82	24	7	1	23	0	369	495.7
2018-19	28	42	248	25	88	19	1	65	8	524	734.1

Note : VTR=Valmiki Tiger Reserve

Source : Annual Report (2018-19), Department of Environment, Forest, and Climate Change

Table 13.16 presents the division-wise forest fire incidents and burnt area in Bihar for the period 2005-2019. In 2018-19, a total of 524 cases of forest fires were detected in Bihar, accounting for a loss of forest area of about 734.1 hectares. Chart 13.7 presents the trends in incidence of forest fires and affected forest area during 2005-06 to 2018-19. Among the divisions, the highest number of incidents was reported in VTR-2 forest division. In the recent past, the maximum number of incidents was reported in 2018-19, while the highest burnt area was reported in 2010-11 (1067.7 hectares).

Chart 13.7 : Trends in Incidence of Forest Fires and Affected Forest Area (2005-2018)



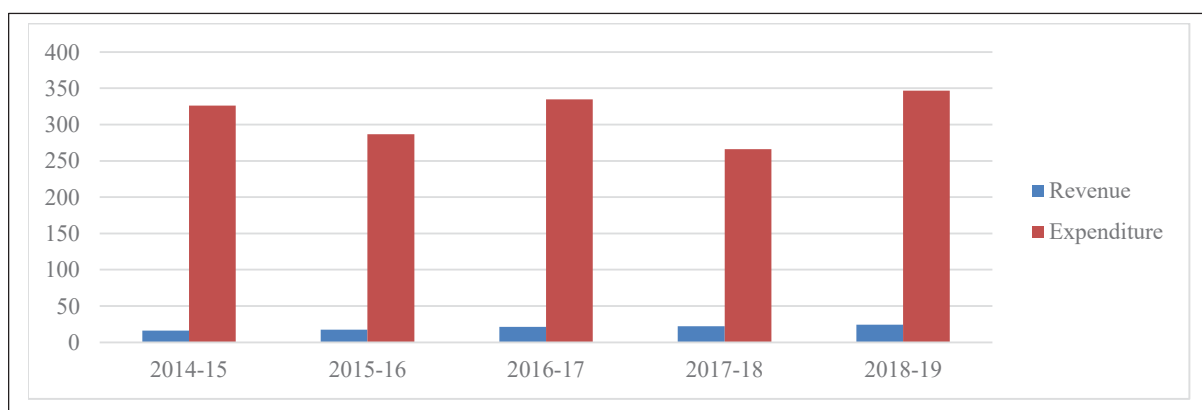
Source : Annual Report, Department of Environment, Forest and Climate Change, GoB

Revenue and Expenditure of Forest Department

The trend in revenue and expenditure of the Department of Environment, Forest and Climate Change for the years 2014-15 to 2018-19 is presented in Table 13.17 and in Chart 13.8. There is a steady increase in the revenue of the Department from Rs. 16.10 crore in 2014-15 to Rs. 24.13 crore in 2018-19, registering a compound annual growth rate of 11.0 percent. However, in case of overall expenditure, there is no clear trend. This is largely due to the mixed trends in plan expenditure, which has shown a negative growth of 2.5 percent during the last five years. However, the non-plan expenditure increased from Rs. 95.47 crore in 2014-15 to Rs. 122.86 crore in 2018-19, recording an annual growth of 6.2 percent. The highest level of expenditure for the Department was recorded in 2018-19 (Rs. 346.61 crore).

Chart 13.8 : Revenue and Expenditure of the Department of Forest (2013-14 to 2018-19)

(Rs. crore)



Source : Department of Environment, Forest & Climate Change, GoB

Table 13.17 : Revenue and Expenditure for Department of Forest (2014-15 to 2018-19)

(Rs. crore)

Year	Revenue	Expenditure		
		Plan	Non-Plan	Total
2014-15	16.10	230.84	95.47	326.31
2015-16	17.52	179.87	106.88	286.76
2016-17	21.22	226.15	108.51	334.67
2017-18	22.08	148.9	117.03	265.93
2018-19	24.13	223.75	122.86	346.61
CAGR (%)	10.97	-2.48	6.13	0.45

Note : CAGR is calculated for the last 5 years (2014-15 to 2018-19)

Source : Department of Environment, Forest & Climate Change, GoB

Schemes of the Department of Forest

The Department of Environment, Forest and Climate Change of the State Government has undertaken various afforestation programmes to maintain ecological and environmental stability. The Bihar State Agroforestry Policy of 2018 seeks to protect and stabilize ecosystems, promote resilient cropping systems, and enhance employment of rural households through expansion of agroforestry. The Compensatory Afforestation Fund Management and Planning Authority (CAMPA-Bihar) has been set up with a view to ensure transparency in utilization of funds that was realised in lieu of forest land diverted for non-forest purposes. The Steering Committee has approved Rs. 37.94 crore to implement a number of forest schemes during 2018-19. Besides this, the details of other schemes of the Department are given below:

Krishi Vaniki-Other Species Yojana: Since 2012-13, this agricultural forestry scheme is being implemented in Bihar, mainly to encourage planting of other species such as teak, mahogany, beechwood (gamhar), rosewood, khair, etc. The saplings are being given to the interested farmers free of cost during the rainy season. Further, cash incentives to the tune of Rs. 10.00 per plant in the first two years and Rs. 15.00 per plant in the third year are being provided to assist in the upkeep of the growing plant. During 2018-19, nearly 57.78 lakh saplings of other species have been planted, benefiting 9513 farmers in the state (Table 13.18).

Table 13.18 : Distribution of Saplings to Farmers under Krishi Vaniki - Other Species Yojana (2013-14 to 2018-19)

Year	Number of Beneficiaries	Total Number of Saplings Planted (lakh)
2013-14	6897	71.06
2014-15	11863	103.36
2015-16	11298	95.17
2016-17	12355	94.63
2017-18	14272	104.4
2018-19	9513	57.78

Source : Department of Environment, Forest & Climate Change, GoB

Krishi Vaniki- Poplar Yojana (ETP) : This Agricultural Forestry Scheme is being implemented in Bihar to promote short rotation and commercial poplar plantation in farmers' land with a view to increase tree cover for environmental protection. The Department provides poplar ETP free of cost to the selected beneficiaries, during December-January. Based on survival of the plants, the farmers get cash incentive amount towards maintenance of the plant — Rs. 10 each in first two years and Rs. 15 per plan in the third year. During 2012-2019, a total of 320.4 lakh plants have been planted, benefitting 40,628 farmers in the state.

Table 13.19 : Agricultural Forestry Scheme (2012-13 to 2018-19)

Year	Number of Beneficiaries	Number of ETP (lakh)
2012-13	1091	4.87
2013-14	4399	31.71
2014-15	8811	87.52
2015-16	6980	60.34
2016-17	6817	52.73
2017-18	7819	56.29
2018-19	4711	26.94
Total	40628	320.4

Note : ETP = Entire Transport

Source : Department of Environment, Forest & Climate Change, GoB

Mukhya Mantri Niji Paudhshala-Poplar ETP Yojana : The poplar plantation scheme aims to set up nurseries with quality plants belonging to different species through entrepreneurs and farmers. This scheme is being implemented in the all the districts of Bihar, where the beneficiaries are being given a subsidy at the rate of Rs. 10,000 for cuttings per acre. The Department purchases the same at a pre-determined rate of Rs. 3.50 per plant. During 2018-19, 400 farmers have received about 40.0 lakh trees from the plantations (Table 13.20)

Table 13.20 : Achievement of Chief Minister Private Nursery-Poplar ETP Scheme (2012-13 to 2018-19)

Year	Number of Beneficiaries	No. of ETP (lakh)
2012-13	407	56.71
2013-14	1055	165.74
2014-15	1043	108.74
2015-16	839	108.70
2016-17	878	101.10
2017-18	550	55.00
2018-19	400	40.00

Source : Department of Environment, Forest & Climate Change, GoB

Mukhya Mantri Niji Paudhshala- Other Species Yojana : This scheme was launched for the purpose of making the seeds available for distribution for establishment of nursery. The plants are purchased at a rate determined by the department. During 2018-19, there were 350 beneficiaries under this scheme in the state (Table 13.21).

Table 13.21 : Achievement of Mukhya Mantri Niji Paudhshala - Other Species Yojana (2012-13 to 2018-19)

Year	Number of Beneficiaries	Number of Plants (lakh)
2012-13	296	56.7
2013-14	379	76.4
2014-15	384	77.4
2015-16	468	93.6
2016-17	561	112.2
2017-18	300	60.0
2018-19	350	70.0

Source : Department of Environment, Forest & Climate Change, GoB

Har Parisar Hara Parisar Yojana : This programme envisages 'Every Campus as a Green Campus'. Due to limited availability of forest land in the state, this scheme was launched with an objective to increase greenery and purify the environment. The plants of suitable species are being planted on vacant land on the premises of government and non-government institutions.

Greening of Urban Spaces: The Department of Environment, Forest and Climate Change is encouraging projects related to landscaping of urban parks and maintaining green spaces in urban areas. The details of plants planted towards greening urban spaces are given in Table A13.5 (Statistical Appendix). During 2017-18 to 2019-20, a total of 1,01,134 plants have been planted in the urban areas in Bihar.

Jal-Jeevan-Hariyali Campaign

The climate change and its ever-increasing evil consequences have been considered by the State Government of Bihar as a warning of nature. Recognising the significant consequences of climate change, the State Government is focusing on managing water, forests, and other natural resources to lessen the risks of environmental degradation. In this context, a joint meeting of the members of the Legislative Assembly and Legislative Council was organized in July 2019. There, the representatives from all parties expressed their concern for climate change and environmental degradation. The Honourable Chief Minister also expressed his anxiety over the issue and shared his views. Based on the suggestions, it was considered necessary to design effective strategies to maintain environmental balance and, consequently, the Jal-Jeevan-Hariyali scheme was conceptualized. It was also agreed that, for environmental conservation, an intensive people's campaign may be initiated. The Jal-Jeevan-Hariyali campaign started in the state, keeping in view the challenge of environmental protection and making the people responsible towards the environment.

The State Government has expressed concerns on the way the trees are felled all over the world and their far-reaching consequences on environmental degradation. The rainfall in the state has declined from 1200-1500 mms. to about 1027 mms. in the last thirty years. The decline is more in the last decade, when the average rainfall in the state has been only about 900 mms. At the same time, sudden high intensity rains in Nepal foothill and some adjoining districts of north Bihar led to a situation of a flash flood. Also, last year Kishanganj district recorded 500 mms rains during a period of only four days. Bihar is facing irregular rainfall, thunderstorm and heatstroke, all occurring as a result of the changes in the environment. On one side, there is a flood like situation in some regions of the state, particularly in North-Bihar and, on the other, there is drought in some parts of southern Bihar. All this highlights the necessity for Jal-Jeevan-Haryali campaign.

In a recent survey, it was observed that the state had green cover only to the extent of 9.7 percent of the total geographical area. In order to increase green cover, a target of 24 crore plantations has been set, out of which, plantations of 19 crore have already been completed by 2019. With a view to increasing green cover, a target of 1.5 crore plantations per year has been fixed. There are plans to plant trees along the roads, embankments, Ahar Pynes and the banks of ponds.

Jal-Jeevan-Hariyali Campaign

Jal-Jeevan-Hariyali is a flagship programme of the State Government which is intended to tackle issues related to climate change and environmental degradation. The awareness campaign for the Jal-Jeevan-Hariyali scheme was launched on August 9, 2019 on the occasion of Bihar Earth Day. This programme was telecast live through webcasting and electronic medium to all the districts of the state and was viewed by more than 20 lakh JEEViKA didis, along with crores of people. Special meetings were organized at the cluster level and various organisations resolved to plant ‘one member-two trees’. Also, a state-wide human chain formation was organised on January 19, 2020, to create awareness about environmental conservation under the Jal-Jeevan-Hariyali campaign. More than 5.17 crore people participated in the 18,034-kilometre-long human chain expressing their solidarity with the campaign. The Chief Minister launched a logo for Jal-Jeevan-Hariyali Campaign, on which it is mentioned ‘Jal-Jeevan-Hariyali Tabhi Hogi Khush-hali’ (Only Jal Jeevan and Hariyali can bring happiness). The total expenditure for the execution of various schemes under Jal-Jeevan Hariyali Campaign is estimated to be Rs 24,524 crore in three years, during 2019-20 to 2021-22.

To make people aware of Jal-Jeevan-Hariyali campaign, communication networks with the co-operation of all the departments are being developed. The street plays (nukkad natak) are being organized for the awareness of the rural community. To promote the campaign, the State Government had organized a state-wide human chain formation on January 19, 2020 to create awareness about the environmental protection and climate change. This historic event saw participation of about 5.17 crore people, who formed a 18,034 kilometres long chain, one of the largest human chain formations in the world.

The State Government has prepared a detailed budget — department-wise, component-wise, and year-wise- for the Jal-Jeevan-Hariyali Campaign. For the execution of this programme, 12 departments are involved. The total expenditure for the execution of various schemes under Jal-Jeevan-Hariyali Campaign is estimated to be Rs. 24,524 crore in three years during 2019-20 to 2021-22. The expenditures for 2019-20, 2020-21 and 2021-22 are estimated to be — Rs. 5870 crore, Rs. 9874 crore and Rs. 8780 crore, respectively. Under the administrative head of Jal-Jeevan-Hariyali Campaign, the estimated expenditures are —Rs. 6.19 crore in 2019-20, Rs. 8.42 crore in 2020-21 and Rs. 8.78 crore in 2021-22. The detailed component wise proposed expenditure is given in Table 13.22.

Table 13.22 : Department-wise Work-Plan and Estimated Budget (2019-20 to 2021-22)

Sl. No.	Department	Components		Estimated Amount (Rs. crore)			
				2019-20	2020-21	2021-22	Total
1	Rural Development Department	1	Renovation of Public Water Harvesting Structures like – Talabs/Pokhars/Ahars/Pynes (Up to approx. 1 acre)	737	1105	921	2763
		2	Construction of Sokhta/Recharge/Others Water Harvesting Structures near Public wells /Handpumps/ Tube Wells (construction of Sokhtas near Public Hand pumps)	53	75	60	188
		3	Construction of structures related to check-dam and water harvesting in the water collection area of small rivers/Nala and mountain areas	53	98	75	226
		4	Creation of new water sources and routing of surplus river water to water deficient area (Public Pokhars and fields)	150	180	120	450
		5	Construction of Rainwater harvesting structures on the building roof tops of the buildings (except Building Construction, Education, Health Department buildings)	21	50	34	105
		6	Development of Nursery and dense Plantation	281	401	474	1156
			Total	1295	1909	1684	4888
2	Minor Water Resources Department	1	To identify and free Public Water harvesting structures like Talab/Pokhars/Ahars/Pynes from encroachments (larger than 1 acre)	2820	4900	4900	12620
		2	Construction of Sokhta/Recharge/Others Water Harvesting Structures near Public wells/ Handpumps/ Tube Wells (Near Public Tube wells)	0	15	15	30
		3	Construction of structures related to check-dam and water harvesting in the water collection area of small rivers/Nala and mountain areas	360	300	300	960
			Total	3180	5215	5215	13610
3	Urban Development and Housing Department	1	Renovation of Public Water Harvesting Structures like – Talabs/Pokhars/Ahars/Pynes (in urban area)	100	100	100	300
		2	To identify and renovate Public wells (in urban areas)	1	2	2	5
		3	Construction of Sokhta/Recharge/Others Water Harvesting Structures near Public wells /Handpumps/ Tube Wells (in urban area)	10	10	10	30
			Total	111	112	112	335
4	Public Health Engineering/ Panchayati Raj Department	1	To identify and renovate Public wells				
		2	Construction of Sokhta/Recharge/Others Water Harvesting Structures near Public wells/ Handpumps/ Tube Wells (construction of Sokhtas near Public wells)	100	200	75	375
			Total	100	200	75	375

5	Environment, Forest and Climate Change Department	1	Construction of structures related to check-dam and water harvesting in the water collection area of small rivers/Nala and mountain areas (groundwater conservation in forest areas – in hectares)	30	60	60	150
		2	Development of Nursery and Dense Plantation	450	600	550	1600
		Total		480	660	610	1750
6	Water Resources Department	1	Creation of new water sources and routing of surplus river water to water deficient area (routing of surplus river water to water deficient area)	200	1200	600	2000
		Total		200	1200	600	2000
7	Animal Husbandry and Fisheries Department	1	Creation of new water sources and routing of surplus river water to water deficient area (development of Chours on private land)	10	50	40	100
		Total		10	50	40	100
8	Department of Agriculture	1	Use of alternate crops, drip irrigation, organic farming and other new techniques				
		2	Development of crops, gardening, plantation in fields through water conservation	25	50	25	100
		3	Organic Farming	48	48	48	144
		4	Drip irrigation system	130	140	150	420
		5	Creation of new water sources and routing of surplus river water to water deficient area (in non-forest water catchment areas)	10	20	20	50
		Total		213	258	243	714
9	Department of Energy	1	To encourage use of solar energy and energy saving				
		2	in govt. buildings (25% will be budget of energy department and 75% to be borne by respective department/organisation)	60	60	60	180
		3	In private buildings (RESCO)	30	30	30	90
		Total		90	90	90	270
10	Building Construction Department	1	Construction of Rainwater harvesting structures on the building roof tops of the buildings (Maintenance of buildings under Building Construction Department)	65	0	0	65
		2	To encourage use of solar energy and energy saving	15			15
		Total		80	0	0	80
11	Other Departments	1	Construction of Rainwater harvesting structures on the building roof tops of the buildings (Education Department)	84	126	84	294
		2	Construction of Rainwater harvesting structures on the building roof tops of the buildings (Health Department)	2	4	2	8
		Total		86	130	86	302
12	Information and Public Relations Department	1	Jal-Jeevan-Hariyali Awareness Campaign	25	50	25	100
Grand Total				5870	9874	8780	24524

Source : Department of Rural Development, GoB

To ensure success of the programme, it was agreed to establish Jal-Jeevan-Hariyali Mission in a meeting convened on September 25, 2019. This Mission has been registered under the Society Registration Act and it was decided to appoint an officer of the additional secretary rank to head the Mission. There are 16 members in its Governing body, with the Chief Secretary as its Chairman. The Executive Committee includes 13 members, with Development Commissioner as its Chairman. In order to provide consultancy in the execution of the Jal-Jeevan-Hariyali campaign, a state Consultative Committee has been constituted under the Chairmanship of Parliamentary Affairs Minister, with 15 legislative assembly members nominated by the Bihar Legislative Assembly, and 5 members nominated by the Bihar Legislative Council. The Consultative Committee will also include Development Commissioner, Additional Chief Secretary, Principal Secretary or Secretary of the Departments relating to Jal-Jeevan-Hariyali campaign. The Secretary of Rural Development will be its Member-Secretary. At the district level, under the Chairmanship of Minister-in-charge, the District Consultative Committee will be organized, with the District Magistrate as its Convenor. Officers from all the related departments at the district level will be the members of the District Consultative Committee.

13.4 Air Pollution

Air pollution is one of the biggest challenges of the world today. The rise in anthropogenic activities such as burning of fossil fuels, industrial and vehicular emissions, construction dust, agricultural residue, burning of domestic fuel and open waste, etc. is leading to high levels of air pollutants affecting the lung capacity and respiratory system of human beings. Besides these, pollution caused from natural phenomena such as forest fires, pollen grains, radioactive materials, and biological decay, etc. are also adding to air pollution. Through the National Air Quality Monitoring Programme, the Central Government is monitoring the levels of four major air pollutants in 312 cities/towns across the country. These pollutants are — sulphur dioxide (SO₂), nitrogen dioxide (NO₂), suspended particulate matters (PM₁₀), and fine particulate matters (PM_{2.5}). The annual average values of ambient air quality at different locations in Bihar during 2017 and 2018 are presented in Table 13.23. Chart 13.9 presents the annual average values on air quality at specific locations in Bihar in 2018.

Given that some cities in Bihar (Patna, Muzaffarpur, and Gaya) figure in the category of ‘very poor’ with regard to air quality, the State Government is creating awareness through campaigns, such as ‘Care for Air’. The burning of crop stubble in agricultural fields in Bihar is also of concern as it raises the concentration of particulate matter in the air to 1000 microgram per cubic metre. Recently, the State Government has announced that the farmers who are found to be burning crop residue would be deprived of financial assistance for a period of three years. There is also an emphasis on use of cleaner fuels such as CNG/LPG for vehicles, promotion and

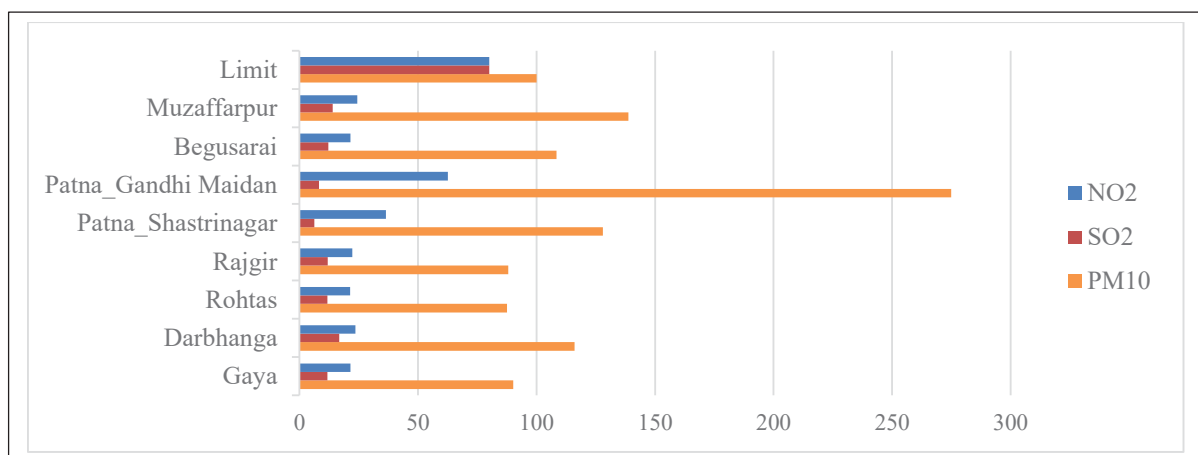
operationalization of E-rickshaw, regular cleaning of road dust, tree plantation along the roads, covering of construction site, transportation of construction materials like sand, soil, stone chips etc. in a covered manner, and adoption of cleaner technology in brick kilns to control air pollution in the city of Patna. The State Government is promoting initiatives to develop green-belts and avenue plantations for in-situ urban pollution dispersal. Further, Gas Authority of India Limited (GAIL) is creating City Gas Distribution Network in Patna geographical area, comprising domestic Piped Natural Gas (PNG) connection and Compress Natural Gas (CNG) network. This will have a Minimum Work Plan of 50,154 PNG connection and 2445 inch-km. in the first five years. Patna covers an area of 3202 sq. kms. and the estimated project cost is Rs. 850 crore for a 25 years work plan. GAIL, with an investment of Rs. 98 crore, has already completed 11,000 PNG infrastructure and made 5 CNG stations operational. By March, 2020 two more CNG stations along with 1500 more PNG infrastructure shall be made ready.

Table 13.23 : Annual Average Values of Ambient Air Quality in Bihar (2017 and 2018)

Station Name	Location	Type	PM ₁₀ (RSPM) in µg/m ³		SO ₂ in µg/m ³		NO ₂ in µg/m ³		PM _{2.5} in µg/m ³	
			2017	2018	2017	2018	2017	2018	2017	2018
Gaya	Raja Market	Residential	77.5	90.1	11.1	11.8	21.6	21.5	—	—
Darbhanga	Kadirabad Chowk	Residential	72.1	116	11.1	16.8	20.3	23.6	—	—
Rohtas	Sasaram	Residential	84.3	87.5	11.1	11.7	21.8	21.3	—	—
Rajgir	Sujkund	Residential	84	88	10.9	11.9	22.1	22.3	—	—
Patna	Shastri Nagar	Residential	129	128	3.39	6.2	27.78	36.4	—	—
Patna	Gandhi Maidan	Residential	129	275	5.4	8.2	49.9	62.6	—	—
Begusarai	Industrial Area Barauni	Industrial	126.5	108.4	9.9	12.1	22.9	21.5	68.1	58.6
Muzaffarpur	Bela Industrial Area	Industrial	166.5	138.8	10.9	14	20.1	24.3	88.7	105.8

Note : Standard Value for 24 hours : PM₁₀ (RSPM) = 100 µg/m³, PM_{2.5} = 60/µg/m³, SO₂ = 80 µg/m³, NO₂ = 80 µg/m³
Source : Bihar State Pollution Control Board

Chart 13.9 : Annual Average Values on Air Quality at Specific Locations in Bihar (2018)



Source : Bihar State Pollution Control Board

13.5 Noise Pollution

Increasing urbanization, population growth, and expanding economic activities have led to rising ambient noise pollution. The different sources are — construction, road traffic, railways, industries, loudspeakers, etc. The daily exposure to high noise levels over long periods of time can have adverse effects on the lives of humans and animals. The Bihar State Pollution Control Board (BSPCB) is monitoring noise level at five different locations in Patna to formulate an action plan to control the noise pollution level in the city.

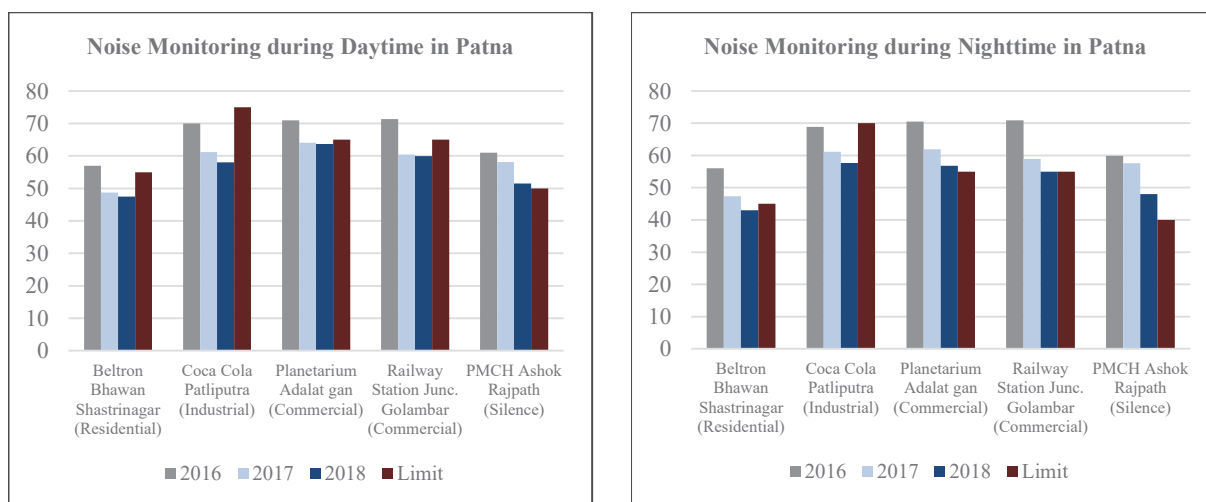
Table 13.24 presents the annual data on ambient noise levels and standard limits at five locations in Patna for the period 2016-18 at both day and night times. In the three-year period, all the five locations had noise levels higher than the permissible decibels during the day time. The night-time ambient noise pollution was the highest at railway station, with 16 points higher than the permissible limit of 55 decibels during 2016. Chart 13.10 presents the annual values of ambient noise quality at these monitoring stations for day and night times. Notably, there has been a declining trend in noise pollution levels in Patna over the period. The State Government is promoting awareness drive against honking to reduce noise pollution in the city.

Table 13.24 : Annual Data on Ambient Noise Monitoring at Five Locations in Patna (2016-2018)
(Avg in Leq dB)

Year	Beltron Bhawan Shastrinagar		Coca Cola Patliputra		Planetarium Adalatganj		Railway Station Golambar		PMCH Ashok Rajpath	
	Residential		Industrial		Commercial		Commercial		Silence	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
2016	57.0	56.0	70.0	68.9	71.0	70.5	71.3	70.9	61.0	59.9
2017	48.7	47.3	61.2	61.1	64.1	61.9	60.4	58.9	58.1	57.6
2018	47.5	43.0	58.0	57.7	63.7	56.8	59.9	55.0	51.5	48.0
Limit	55.0	45.0	75.0	70.0	65.0	55.0	65.0	55.0	50.0	40.0

Note : Leq = Equivalent Continuous Sound Level
Source : Bihar State Pollution Control Board

Chart 13.10 : Annual Values of Ambient Noise Quality in Monitoring Stations (2016-18)



Source : Bihar State Pollution Control Board

13.6 Biodiversity and Wildlife

Climate change, deforestation, burning of fossil fuels and other anthropogenic influences are causing high risk to the survival of diverse wildlife. In many ways, the threat of climate change infringes the security of wildlife habitats, causing to change their habitat, disrupting ecological linkages, or directly threatening their survival. The Shivalik-Gangetic Plain landscapes are one of the most important centres of diverse biological diversity and ecosystem services. However, the rise in temperature, variability in precipitation, emission flows, deforestation, dwindling water resources and population dynamics are endangering the wildlife and their ecosystems. The State Government's efforts in conservation and protection of biodiversity and wildlife include many activities, including a number of bird and wildlife sanctuaries in Bihar. Some of the areas are notified as eco-sensitive zones in the state.

Table 13.25 presents the details of wildlife, biosphere and bird sanctuaries in Bihar. The Valmiki Tiger Reserve is located in an area of 893.73 sq. kms. in the district of West Champaran, housing the *Panthera Tigris*. As per the estimates of the National Tiger Conservation Authority, Bihar experienced 11 tiger deaths during 2012 to 2018, out of which, 5 were due to natural causes and 2 each due to poaching and seizure. The tiger population in Bihar has increased from 8 in 2010 to 31 in 2018.

The Vikramshila Gangeya Dolphin Sanctuary situated in Bhagalpur in an area of 60 kms. provides habitat for the Gangetic Dolphin (*Platanista Gangetica*), freshwater fishes and turtles. The state has five bird sanctuaries, with diverse species of water and migratory birds. The state also has a number of wildlife sanctuaries, such as Bheembandh Wildlife Sanctuary, Gautam Buddha Wildlife Sanctuary, Pant Wildlife Sanctuary (Rajgir), Kaimur Wildlife Sanctuary, Rajauli Wildlife Sanctuary (Nawada) and Udaipur Wildlife Sanctuary. The State Government is encouraging people's participation through eco-development committees to protect wildlife and its habitat.

Table 13.25 : Wildlife, Biosphere Reserves and Bird Sanctuaries in Bihar

Name of Sanctuary/ Reserve	Location (District) and Area	Date of Notification	Eco-Sensitive Zone (Area in Ha)	Wildlife Species
Valmiki Tiger Reserve	W. Champaran 893.73 Sq.Km	07.08.2012	83576.9	Tiger, Indian Rhinoceros, Black Bear, Indian Sloth Bear, Otter, Indian Leopard, Wild Dog, Buffalo, Boar, Barking Deer, Spotted Deer, Hog Deer, Sambar, Blue Bull, Hyena, Leopard Cat, Wild Cat, Fishing Cat, Langur, Monkey, Flying Squirrel, Clouded Leopard, Indian Gaur, Mongoose
Sanctuaries				
Bheembandh Wildlife Sanctuary	Munger 681.9 Sq.Km	27.05.1976	44311.3	Black Bear, Boar, Barking Deer, Spotted Deer, Hog Deer, Blue Bull, Leopard Cat, Wild Cat, Langur, Monkey, Mongoose
Gautam Buddha Wildlife Sanctuary	Gaya 138.33 Sq.Km	14.09.1976	14925.0	
Pant Wildlife Sanctuary, Rajgir	Nalanda 35.84 Sq.Km	25.05.1978	2954.5	
Kaimur Wildlife Sanctuary	Kaimur & Rohtas 1504.96 Sq.Km	20.07.1979	48555.0	
Rajauli (Nawada) Wildlife Sanctuary	Nawada 2.72 Sq.Km	10.05.2019	—	
Udaipur Wildlife Sanctuary	W. Champaran 3.19 Sq.Km	05.05.1978	3759.0	Ox-Bow Lake with Swampy Forest
Nagi Dam Bird Sanctuary	Jamui 1.92 Sq.Km	28.11.1983	2140.4	Water Birds, Migratory Birds
Nakti Dam Bird Sanctuary	Jamui 3.33 Sq.Km	22.07.1987	2329.2	Water Birds, Migratory Birds
Kaabar Jheel Bird Sanctuary	Begusarai 63.12 Sq.Km	20.06.1989		Water Birds, Migratory Birds
Kusheshwarsthan Bird Sanctuary	Darbhanga 29.21 Sq.Km	05.07.1994	3293.0	Water Birds, Migratory Birds
Salim Ali Jubba Sahni Baraila Jheel Bird Sanctuary	Vaishali 1.98 Sq.Km	28.01.1997	1083.6	Water Birds, Migratory Birds
Vikramshila Gangeya Dolphin Sanctuary	Bhagalpur 60 Km	22.08.1990	12221.0	Gangetic Dolphin (<i>Platanista Gangetica</i>), Freshwater Fishes and Turtles

Source : Department of Environment, Forest and Climate Change, GoB

13.7 Disaster Management

Bihar is one of the climate-sensitive states in India, because of its geographical location and related hydro-meteorological uncertainties. This is evident in the frequent occurrence of disasters such as earthquake, thunderstorm, heatwave, flood, drought, etc. The disasters affect the lives and livelihood of people. The south-west monsoon brings the maximum rainfall in the state, lasting from June to September, and often causes flood-like situation, especially in the northern

districts. In recent years, changing climatic conditions have led to increase in frequency and intensity of floods and droughts. Bihar experienced heavy rainfall during the south-west monsoons in 2019 leading to localised cyclonic circulations resulting in occurrence of lightning and thunderstorms. The district-wise incidence of deaths due to thunderstorms during 2015-2019, is presented in Table A 13.6 (Statistical Appendix). In 2019, there were 216 reported cases of death due to thunderstorms in the state. The districts of Jamui, Aurangabad, Gaya, and Nalanda had more than 15 deaths each due to thunderstorms.

The damage to crop due to drought has been widespread in the state. The floods during July to September, 2019 affected districts such as Sheohar, Sitamarhi, East Champaran, Madhubani, Araria, Kishanganj, Supaul, Darbhanga, Muzaffarpur, Saharsa, Katihar, Purnea, and West Champaran. Excessive rainfall in the kharif season and overflowing rivers have resulted in substantial crop damage. As per the estimates of the Department of Agriculture, more than 5 lakh hectares of the state could not be sown (Table 13.26). An amount of Rs 772.47 crore has been set aside for distribution of agricultural input grant to the farmers facing crop damage due to floods.

Table 13.26 : Flood and Drought related Reports in Kharif (2019)

Particulars	Damaged Area ('000 hectares)	Damage (Rs. lakh)
Net Sown Area	5259.34	—
Total Crop Area Affected	396.14	50788.62
Flood related Damage July 2019 (Loss more than 33 percent)	175.76	23645.70
Flood related Damage September 2019 (Loss more than 33 percent)	2208.38	27142.92
Unsown Area	389.10	26458.85
Total Loss	785.24	77247.47

Source : Department of Agriculture, GoB

The State Government lays high priority on efficient management of disasters in the state. Keeping in view the damage caused by rains and floods in Bihar, the State Government has set aside an expenditure of Rs. 1607.14 crore for relief on account of natural calamities in 2018-19. Further, an expenditure of Rs. 300.00 crore has been assigned for providing diesel subsidy in 2018-19. The State Government is providing financial assistance to the farmers in case of damage to the crops due to natural calamities under the Bihar Rajya Fasal Sahayata Scheme. For the execution of this crop assistance scheme, an expenditure of Rs. 318.23 crore has been

earmarked by the State Government in 2018-19. The Bihar State Action Plan on Climate Change (Bihar-SAPCC) aims to focus on strategies relating to agriculture, water resources, forests and biodiversity, and disaster management. The 15-year Disaster Risk Reduction roadmap of Bihar envisages to follow a community-centric approach for disaster reduction in priority sectors, such as agriculture. The State Disaster Management Plan points to the need to establish ‘Sankalp Kendra’ to enable community-based disaster management. There are measures being taken to revive the ponds and reservoirs in north Bihar and Ahar-Pynes in the southern part to enable water conservation measures to meet the flood and drought-like situations. The Disaster Management Cell is overseeing the measures for better preparedness for tackling natural and man-made disasters in the state. Further, efforts are being made towards capacity building, strengthening the functioning of the District Disaster Management Authorities, organising public awareness campaigns, and investing more in the management of disasters in the state.

APPENDIX

Table A 13.1 : District-wise Annual Rainfall across Different Seasons (2018 and 2019)

(Rainfall in mm)

District	2018					2019 (Up to September)			
	Winter Rain	Hot Weather Rain	South-West Monsoon	North-West Monsoon	Annual	Winter Rain	Hot Weather Rain	South-West Monsoon	Annual
Patna	0.0	25.2	582.2	5.8	613.2	10.9	28.1	799.6	838.6
Nalanda	0.0	31.4	647.9	20.6	699.9	27.7	35.9	836.3	899.9
Bhojpur	0.0	19.1	723.6	0.6	743.3	17.6	33.5	814.7	865.8
Buxar	0.0	25.3	691.3	0.2	716.8	17.5	31.4	828.8	877.6
Rohtas	0.0	1.5	607.5	6.5	615.5	1.1	2.4	777.8	781.4
Kaimur	0.0	16.5	837.2	2.8	856.5	20.8	9.2	1032.6	1062.6
Gaya	0.0	16.0	747.2	20.1	783.3	22.8	23.5	855.7	902.0
Jehanabad	0.0	0.9	394.5	7.8	403.2	14.7	44.3	714.7	773.6
Arwal	0.0	0.0	581.4	3.6	585.0	19.6	7.5	545.4	572.5
Nawada	0.0	24.5	651.3	5.7	681.5	27.8	9.0	837.8	874.6
Aurangabad	0.0	2.2	727.7	26.3	756.6	16.0	14.0	854.2	884.2
Saran	0.0	37.4	464	0.6	502.0	16.6	11.9	990.6	1019.0
Siwan	0.0	74.5	599.9	0.2	674.6	24.2	18.3	1403.1	1445.6
Gopalganj	0.0	75.5	665.7	0.0	741.2	26.8	12.3	1245.8	1284.8
W. Champaran	0.0	55.2	483.5	7.8	546.5	32.9	15	1035.4	1083.3
E. Champaran	0.0	71.2	716.4	2.9	790.5	40.0	59.2	1184.5	1283.7
Muzaffarpur	0.0	156.5	1011.8	3.2	1171.5	53.2	58.0	1248.5	1359.7
Sitamarhi	0.0	89.5	877.3	0.7	967.5	24.1	84.0	1012.3	1120.3
Sheohar	0.0	83.6	678.1	0	761.7	27.8	42.3	951.1	1021.2
Vaishali	0.0	59.1	493.2	0.6	552.9	15.2	11.9	1003.9	1030.9
Darbhanga	0.0	57.7	513.6	7.0	578.3	16.9	65.3	977.6	1059.8
Madhubani	0.0	61.0	836.3	4.8	902.1	25.6	101.5	1025.1	1152.2
Samastipur	0.0	111.1	622.3	13.5	746.9	26.2	36.8	928.2	991.2
Munger	0.0	99.9	818.4	101.8	1020.1	40.2	23.2	798.8	862.2
Lakhisarai	0.0	73.4	561.7	180	815.1	34.0	18.6	680.6	733.2
Sheikhpura	0.0	26.1	525.7	33.9	585.7	27.8	13.6	580.2	621.7
Jamui	0.0	84.7	582.1	44.4	711.2	36.7	10.6	728.3	775.6
Begusarai	0.0	78.6	584.2	51.2	714.0	16.1	11.7	778.2	806.0
Khagaria	0.0	35.9	509.7	95.5	641.1	40.3	49.0	935.5	1024.7
Bhagalpur	0.0	120.0	728.8	62.6	911.4	45.7	96.4	1023.5	1165.6
Banka	0.0	33.8	699.2	41.9	774.9	44.7	79.9	817.7	942.3
Saharsa	0.0	81.3	556.4	38.4	676.1	35.7	85.2	1100.4	1221.2
Supaul	0.0	138.2	843.6	23.4	1005.2	61.7	126.9	1241.0	1429.6
Madhepura	0.0	102.7	765.6	28.8	897.1	32.4	116.0	1191.6	1339.9
Purnea	0.0	94.6	942.5	30.9	1068.0	35.8	131.2	1130.8	1297.8
Kishanganj	0.0	138.5	1358.1	25.7	1522.3	27.5	342.8	1581.4	1951.8
Araria	0.0	151.6	852.8	17.4	1021.8	36.4	160.2	1310.4	1507.1
Katihar	0.0	126.9	722.6	51.6	901.1	32.3	142.0	993.6	1167.9
Bihar	0.0	65.3	689.6	25.5	780.4	28.2	56.9	968.3	1053.5

Source : Directorate of Economics and Statistics, GoB

Table A 13.2 : District-wise Groundwater Recharge in Bihar (2017)

(in bcm)

District	Groundwater Recharge					Total Natural Discharge
	Monsoon Season		Non-Monsoon Season		Total	
	Recharge from rainfall	Recharge from other sources	Recharge from rainfall	Recharge from other sources		
Patna	0.69	0.09	0.10	0.13	1.00	0.07
Nalanda	0.50	0.11	0.07	0.21	0.89	0.08
Bhojpur	0.55	0.18	0.03	0.18	0.94	0.09
Buxar	0.30	0.17	0.02	0.16	0.66	0.07
Rohtas	0.88	0.12	0.10	0.05	1.16	0.10
Kaimur	0.59	0.15	0.04	0.21	0.99	0.09
Gaya	0.81	0.09	0.14	0.12	1.15	0.08
Jehanabad	0.21	0.04	0.02	0.08	0.35	0.03
Arwal	0.13	0.05	0.02	0.03	0.22	0.01
Nawada	0.41	0.07	0.04	0.11	0.63	0.05
Aurangabad	0.73	0.10	0.13	0.08	1.04	0.05
Saran	0.59	0.10	0.06	0.12	0.88	0.06
Siwan	0.46	0.24	0.05	0.20	0.94	0.06
Gopalganj	0.51	0.16	0.06	0.17	0.89	0.07
W. Champaran	0.99	0.23	0.16	0.34	1.72	0.11
E. Champaran	0.92	0.24	0.16	0.15	1.46	0.12
Muzaffarpur	0.66	0.20	0.09	0.25	1.20	0.10
Sitamarhi	0.56	0.07	0.03	0.05	0.70	0.05
Sheohar	0.12	0.01	0.00	0.01	0.14	0.01
Vaishali	0.48	0.12	0.07	0.10	0.77	0.07
Darbhangha	0.55	0.14	0.11	0.16	0.96	0.08
Madhubani	0.76	0.18	0.10	0.14	1.17	0.11
Samastipur	0.58	0.27	0.13	0.36	1.34	0.08
Munger	0.25	0.06	0.02	0.05	0.37	0.03
Lakhisarai	0.22	0.05	0.02	0.03	0.32	0.03
Sheikhpura	0.14	0.03	0.02	0.04	0.23	0.02
Jamui	0.30	0.03	0.02	0.04	0.40	0.03
Begusarai	0.44	0.06	0.05	0.16	0.71	0.07
Khagaria	0.39	0.05	0.04	0.29	0.76	0.08
Bhagalpur	0.60	0.03	0.09	0.03	0.76	0.05
Banka	0.31	0.08	0.06	0.05	0.50	0.03
Saharsa	0.39	0.05	0.06	0.04	0.54	0.03
Supaul	0.54	0.11	0.19	0.09	0.92	0.07
Madhepura	0.38	0.07	0.09	0.10	0.65	0.04
Purnea	0.80	0.04	0.29	0.04	1.17	0.06
Kishanganj	0.60	0.01	0.16	0.02	0.79	0.08
Araria	0.68	0.05	0.23	0.02	0.99	0.07
Katihar	0.82	0.08	0.11	0.09	1.10	0.10
Bihar	19.83	3.95	3.14	4.50	31.41	2.43

Source : National Compilation on Dynamic Groundwater Resources of India, 2017

Contd.

Table A 13.2 : District-wise Groundwater Recharge in Bihar (2017) (Contd.)

(in bcm)

District	Annual Extractable Ground-water Resources	Current Annual Groundwater Extraction				Stage of Ground Water Extraction (%)
		Irrigation	Industrial	Domestic	Total	
Patna	0.93	0.43	0.03	0.10	0.56	60.1
Nalanda	0.80	0.47	0.03	0.05	0.55	68.8
Bhojpur	0.85	0.40	0.02	0.05	0.47	56.0
Buxar	0.59	0.26	0.01	0.03	0.31	51.6
Rohtas	1.06	0.19	0.01	0.05	0.26	24.3
Kaimur	0.90	0.26	0.01	0.03	0.30	33.2
Gaya	1.08	0.59	0.04	0.08	0.71	65.8
Jehanabad	0.32	0.28	0.01	0.02	0.31	95.7
Arwal	0.21	0.06	0.00	0.01	0.08	38.6
Nawada	0.58	0.26	0.02	0.03	0.31	52.9
Aurangabad	0.99	0.21	0.01	0.04	0.26	26.6
Saran	0.82	0.43	0.03	0.07	0.52	63.7
Siwan	0.88	0.42	0.02	0.06	0.50	56.8
Gopalganj	0.82	0.53	0.03	0.05	0.60	73.4
W. Champaran	1.61	0.27	0.02	0.07	0.36	22.6
E. Champaran	1.34	0.44	0.03	0.09	0.56	41.9
Muzaffarpur	1.10	0.62	0.04	0.09	0.74	67.6
Sitamarhi	0.65	0.23	0.01	0.06	0.30	45.9
Sheohar	0.13	0.06	0.00	0.01	0.08	58.0
Vaishali	0.70	0.35	0.02	0.06	0.44	62.3
Darbhanga	0.88	0.21	0.02	0.08	0.30	34.2
Madhubani	1.06	0.29	0.02	0.08	0.39	36.7
Samastipur	1.26	0.49	0.03	0.07	0.60	47.3
Munger	0.34	0.08	0.01	0.02	0.11	33.1
Lakhisarai	0.29	0.06	0.00	0.02	0.09	29.9
Sheikhpura	0.22	0.07	0.00	0.01	0.08	38.4
Jamui	0.37	0.08	0.01	0.03	0.12	32.0
Begusarai	0.64	0.26	0.02	0.06	0.34	52.3
Khagaria	0.69	0.18	0.01	0.03	0.22	32.3
Bhagalpur	0.70	0.14	0.01	0.04	0.19	27.5
Banka	0.47	0.12	0.01	0.04	0.16	34.6
Saharsa	0.50	0.17	0.01	0.03	0.21	40.8
Supaul	0.86	0.25	0.01	0.04	0.30	35.3
Madhepura	0.60	0.30	0.02	0.04	0.35	58.3
Purnea	1.11	0.53	0.03	0.06	0.61	55.2
Kishanganj	0.71	0.12	0.01	0.03	0.15	21.6
Araria	0.92	0.12	0.01	0.05	0.18	19.6
Katihar	1.00	0.56	0.03	0.05	0.64	63.7
Bihar	28.99	10.78	0.66	1.83	13.26	45.8

Source : National Compilation on Dynamic Groundwater Resources of India, 2017

Table A 13.3 : District-wise Wetland Area in Bihar

District	Geographical area (Sq. km)	Wetland area (ha)	% of total wetland area	Percent of geographical area	Open water (ha)	
					Post-monsoon	Pre-monsoon
Patna	3130	20678	5.13	6.61	11943	7570
Nalanda	2362	1589	0.39	0.67	756	283
Bhojpur	2337	11154	2.77	4.77	5700	2435
Buxar	1634	3717	0.92	2.27	2449	1408
Kaimur	1840	796	0.2	0.43	296	174
Rohtas	3838	18641	4.62	4.86	9259	4040
Gaya	4941	11422	2.83	2.31	3979	626
Jehanabad	1569	4345	1.08	2.77	1843	564
Arwal	-	-	-	-	-	-
Nawada	2498	5464	1.36	2.19	2445	1241
Aurangabad	3389	8116	2.01	2.39	3428	1436
Saran	2624	21170	5.25	8.07	12118	7950
Siwan	2213	7105	1.76	3.21	4295	2117
Gopalganj	2003	7122	1.77	3.56	5128	3783
W. Champaran	4250	21697	5.38	5.11	11924	10118
E. Champaran	4155	12477	3.09	3.0	8915	5119
Muzaffarpur	3123	10490	2.6	3.36	6984	4048
Sitamarhi	2628	2601	0.65	0.99	906	588
Sheohar	443	1476	0.37	3.33	845	782
Vaishali	1995	17148	4.25	8.6	11405	5970
Darbhanga	2502	8709	2.16	3.48	5171	2467
Madhubani	3478	8958	2.22	2.58	2411	2280
Samastipur	2579	15022	3.73	5.82	10867	7133
Begusarai	1889	20365	5.05	10.78	10628	7703
Munger	1419	11979	2.97	8.44	7001	5498
Sheikhpura	689	296	0.07	0.43	163	73
Lakhisarai	1229	4177	1.04	3.4	1759	1447
Jamui	2997	7351	1.82	2.45	3593	2734
Khagaria	1486	11645	2.89	7.84	9060	5807
Bhagalpur	2502	24171	5.99	9.66	16237	10273
Banka	3020	9895	2.45	3.28	5151	3847
Saharsa	1196	12086	3.0	10.11	7202	4125
Supaul	2985	19285	4.78	6.46	9004	9021
Madhepura	1797	3539	0.88	1.97	1589	967
Purnea	3203	12401	3.08	3.87	5279	3365
Kishanganj	1939	10954	2.72	5.65	5542	4886
Araria	2797	4157	1.03	1.49	2245	1930
Katihar	3010	31011	7.69	10.3	17135	14574
Bihar	91689	403209	100	166.51	224655	148382

Source : Department of Environment, Forest, and Climate Change, GoB

Table A 13.4 : District-wise Forest Area in Bihar (2017 and 2019)

(Area in sq. km)

District	Geographical Area	2017				2019			
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total Forest Cover	Very Dense Forest	Mod. Dense Forest	Open Forest	Total Forest Cover
Patna	3202	0.0	21.0	5.0	26.0	0.0	18.8	4.8	23.5
Nalanda	2355	0.0	7.0	25.0	32.0	0.0	6.9	25.0	31.9
Bhojpur	2474	0.0	21.0	15.0	36.0	0.0	19.4	12.8	32.3
Buxar	1624	0.0	3.0	3.0	6.0	0.0	2.9	3.0	5.9
Kaimur	3362	0.0	520.0	551.0	1071.0	0.0	525.1	531.3	1056.4
Rohtas	3851	0.0	335.0	371.0	706.0	0.0	352.5	319.7	672.2
Gaya	4976	0.0	141.0	464.0	605.0	0.0	134.4	455.9	590.3
Jehanabad	1569	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arwal	237	0.0	2.0	3.0	5.0	0.0	1.6	2.4	4.0
Nawada	2494	0.0	189.0	323.0	512.0	0.0	201.0	312.5	513.5
Aurangabad	3305	0.0	62.0	95.0	157.0	0.0	62.3	94.5	156.8
Saran	2641	0.0	26.0	31.0	57.0	0.0	26.3	32.8	59.1
Siwan	2219	0.0	2.0	5.0	7.0	0.0	2.0	5.2	7.2
Gopalganj	2033	0.0	2.0	3.0	5.0	0.0	2.0	2.9	4.9
W. Champaran	5228	248.0	551.0	105.0	904.0	249.2	550.2	105.2	904.7
E. Champaran	3968	0.0	66.0	89.0	155.0	0.0	65.0	98.8	163.9
Muzaffarpur	3172	0.0	48.0	94.0	142.0	0.0	52.2	109.7	161.8
Sitamarhi	2200	0.0	37.0	109.0	146.0	0.0	37.4	110.4	147.8
Sheohar	443	0.0	2.0	17.0	19.0	0.0	2.0	18.6	20.6
Vaishali	2036	0.0	80.0	29.0	109.0	0.0	82.5	29.3	111.8
Darbhanga	2279	0.0	43.0	93.0	136.0	0.0	43.5	94.1	137.7
Madhubani	3501	0.0	39.0	158.0	197.0	0.0	40.3	163.7	204.1
Samastipur	2904	0.0	108.0	49.0	157.0	0.0	105.3	48.1	153.4
Begusarai	1918	0.0	29.0	54.0	83.0	0.0	28.6	53.3	82.0
Munger	1419	38.0	226.0	21.0	285.0	38.0	223.7	22.0	283.6
Sheikhpura	689	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0
Lakhisarai	1228	17.0	147.0	19.0	183.0	17.0	144.4	19.0	180.4
Jamui	3098	29.0	351.0	261.0	641.0	29.0	351.7	267.3	648.0
Khagaria	1486	0.0	3.0	18.0	21.0	0.0	3.2	15.3	18.5
Bhagalpur	2569	0.0	49.0	19.0	68.0	0.0	46.2	23.5	69.7
Banka	3020	0.0	104.0	136.0	240.0	0.0	103.3	157.4	260.7
Saharsa	1702	0.0	4.0	30.0	34.0	0.0	4.2	30.5	34.6
Supaul	2410	0.0	4.0	126.0	130.0	0.0	3.9	134.9	138.8
Madhepura	1788	0.0	1.0	50.0	51.0	0.0	0.9	52.0	52.9
Purnea	3229	0.0	5.0	48.0	53.0	0.0	5.0	50.7	55.7
Kishanganj	1884	0.0	17.0	85.0	102.0	0.0	16.3	87.4	103.7
Araria	2830	0.0	8.0	148.0	156.0	0.0	8.1	142.9	151.0
Katihar	3057	0.0	6.0	55.0	61.0	0.0	6.0	56.0	62.0
Bihar	94400	332.0	3260.0	3707.0	7299.0	333.1	3280.3	3692.5	7306.0

Source : Department of Environment, Forest and Climate Change, GoB

Table A 13.5 : Greening of Urban Spaces (2017-18 to 2019-20)

Forest Division	No. of plants planted in forest festival			
	2017-18	2018-19	2019-20	Total
Bhagalpur	355	3000	1850	5205
Munger	200	200	400	800
Banka	460	550	300	1310
Jamui	1525	710	2678	4913
Purnea	155	2025	1500	3680
Saharsa	267	300	1100	1667
Supaul	500	3300	1500	5300
Araria	475	3190	2075	5740
Tirhut	275	500	1500	2275
Begusarai	400	350	3300	4050
Vaishali	460	800	1960	3220
Motihari	252	1955	2000	4207
Sitamarhi	650	1325	2000	3975
Bhitaha	131	1550	475	2156
Bhitaha-1	234	1000	150	1384
Gopalganj	210	310	400	920
Saran	273	450	600	1323
Rohtas	190	650	800	1640
Gaya	1500	2700	485	4685
Aurangabad	310	3500	250	4060
Nalanda	1109	1850	20500	23459
Nawada	240	600	-	840
Patna	265	1981	4166	6412
Bhojpur	67	151	1833	2051
Kaimur			2926	2926
Mithila	467	652	1817	2936
Total	10503	32947	51822	101134

Source : Department of Environment, Forest and Climate Change, GoB

Table A 13.6 : District-wise Incidence of Deaths due to Thunderstorms (2015-2019)

District	2015	2016	2017	2018	2019
Patna	2	7	9	4	5
Nalanda	7	6	3	2	13
Bhojpur	0	5	6	0	4
Buxar	0	5	3	5	4
Rohtas	3	5	6	3	6
Kaimur	7	4	0	5	3
Gaya	3	2	2	11	15
Jehanabad	2	0	4	2	3
Arwal	0	0	1	0	11
Nawada	2	0	4	2	14
Aurangabad	0	6	6	12	16
Saran	4	4	5	1	1
Siwan	1	0	2	1	5
Gopalganj	0	0	1	0	2
West Champaran	0	4	7	0	3
East Champaran	0	2	5	2	12
Muzaffarpur	0	1	1	0	0
Sitamarhi	0	0	2	0	1
Sheohar	1	1	1	0	0
Vaishali	0	0	9	3	1
Darbhanga	1	0	2	5	5
Madhubani	0	2	3	4	0
Samastipur	0	3	6	2	3
Munger	8	4	3	15	2
Lakhisarai	8	0	2	2	2
Sheikhpura	1	0	4	3	1
Jamui	10	1	17	0	20
Begusarai	2	0	0	3	8
Khagaria	0	0	4	8	4
Bhagalpur	7	8	23	6	12
Banka	3	3	8	6	12
Sahasra	6	3	0	4	3
Supaul	4	2	1	1	0
Madhepura	10	3	5	4	1
Purnea	12	8	10	5	5
Kishanganj	2	9	0	0	0
Araria	16	2	6	8	9
Katihar	11	14	9	10	10
Bihar	133	114	180	139	216

Source : Department of Disaster Management, GoB

CHAPTER - XIV

E-GOVERNANCE

E-governance is a transparent, smart governance with seamless access, secure and authentic flow of information crossing the inter-departmental barrier and providing a fair and unbiased service to citizens.

— A.P.J. Abdul Kalam

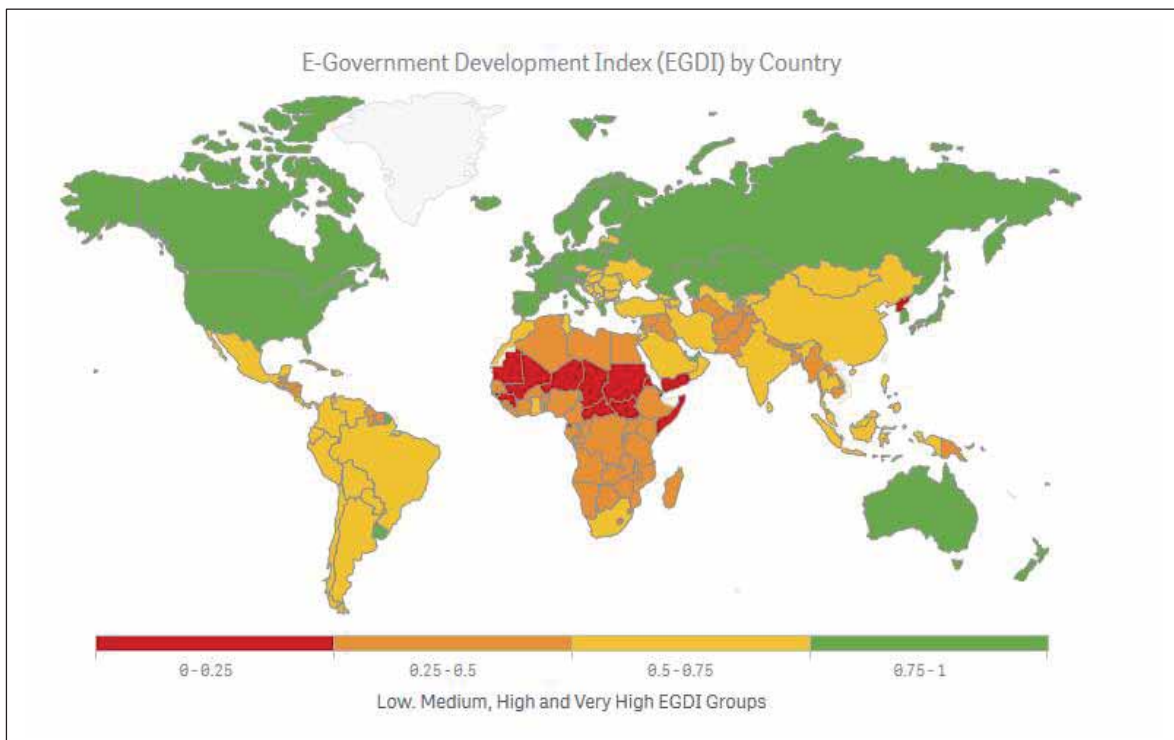
Abstract

E-governance provides close interaction between the government and the citizen. In order to promote e-Governance in a holistic manner, various policy initiatives and projects have been undertaken by the State Government to deliver good governance and development with justice. The State Government has received several awards in different areas of e-governance. The State Government has taken several measures through CCTNS, Cyber Security, e-Prison, CCTV and VC Surveillance, E-Court etc. to maintain the law and administration in the state. Presently, CFMS allows the State Government to achieve more allocative and operational efficiency in management of Public Finance. The better service delivery through DBT helps to build trust between government and public. For examples, e-Labharthi alone provides DBT to crores of beneficiaries in the field of education, health, social welfare, food security etc. The State Government has enacted several rights based powers (RTI, RTPS, etc) for the citizen. Bihar faces many types of disasters and, therefore, several e-project have been initiated to make people alert through advance information about disasters. The State Government has also implemented several e-governance programmes to promote economic development in the state.

Throughout the world, deploying e-governance in support of good governance is crucial for building effective, accountable and inclusive institutions at all levels. E-governance has been growing rapidly around the last two decades since the first attempt of the United Nations to benchmark the state of e-governance in 2001. It improves public services, citizens' engagement, and transparency and accountability of the authorities. The United Nations conduct Surveys on e-government development based on the holistic view of e-governance that incorporates three dimensions which facilitates people to benefit from online services and information, and these are:

the adequacy of telecommunications infrastructure, the ability of human resources to promote and use ICT, and the availability of online services and content. The Survey tracks progress of e-government development via the E-Government Development Index (EGDI) at the national level of 193 United Nations member states, which is a composite index based on the weighted average of three normalized indices. These three indices are — Telecommunications Infrastructure Index (TII), Human Capital Index (HCI) and Online Service Index (OSI). India is among the high EGDI category states ranked 96 during 2018. The status of e-governance across the globe is presented through the Map 14.1.

Map 14.1 : Status of E-Government Development Index (EGDI) in the World



Source : United Nations E-Government Survey, 2018, Department of Economic and Social Affairs, UN

In the above background, the State Government has decided for two core priorities — good governance and development with justice since 2005-06. The State has received as many as eight awards in the field of e-governance. Bihar has been conferred with the Oracle E-Governance Excellent Award for VAT Information Computerisation to optimise revenue yields in 2006. Bihar got the prestigious 11th National e-Governance Award - 2008 by the Government of India. Bihar has also been conferred the prestigious Prime Minister National Award for Excellence in Public Administration for the year 2007-08 for the project e-Registration in Bihar (SCORE System for Computerized Registration). During 2014-15, Bihar has bagged four awards - (i)

Digital India Award-2015, (ii) CSI Nihilent e-Governance 2014-15 award, (iii) National Award for e-Governance 2014-15 and (iv) Skill Development and Employability under National e-Governance award 2014-15. In 2018, Bihar has received another National E-Governance Award for SEITRA (Smart Energy Infrastructure and Revenue Administration) which is a major IT initiative in the State's power sector for enhanced e-services. The government machinery has been strengthened with many Information and Communication Technology (ICT) initiatives for delivering good governance. Many forms of e-governance have been deployed by the State Government. ICT facilitates e-governance programme by speeding up governmental process, taking decisions expeditiously and judiciously, increasing transparency and enforcing accountability. It escalates the reach of the government, geographically and demographically. Nearly every department provides its e-services through several e-governance projects. In the above background, apart from ICT Infrastructure, this chapter reports the functions of the government channelled through e-governance — (i) Maintenance of Law and Administration, (ii) Public Finance Management, (iii) Service Delivery, (iv) Emergency Services, and (v) Promotion of Economic Development.

14.1 Foundation for E-Governance

The revolution in ICT has brought about a new agenda for governance into the realm of possibility. E-governance comprises decisional processes and the use of ICT for wider participation of citizens in public affairs. In order to promote the e-governance programme, development of ICT infrastructure including mobile phones and internet access are essential. The State Government has developed State Data Centre (SDC), State Wide Area Network (SWAN), Common Service Centres (CSC) and middleware gateways to facilitate e-governance programme. These gateways include State e-Governance Service Delivery Gateway (SSDG), National e-Governance Service Delivery Gateway (NSDG) and Mobile e-Governance Service Delivery Gateway (MSDG). Presently, working-from-home, distance learning, e-banking, and e-governance are possible with an internet connection. Such infrastructure helps the State Government by providing e-services for e-governance. The following basic infrastructures have been created for fast and better e-governance services:

BSWAN 2.0 : It is a robust intra-network system established in all blocks and sub-divisions (635), all districts (38) and at state headquarters. It connects around 2500 Government Offices. Apart from the connectivity, a state of art video conferencing (VC) facility is available which can be

availed from anywhere any time with authentication. In order to use renewable energy, 674 BSWAN PoP connections have been equipped with solar power grid connectivity.

SecLAN 2.0 : It is used for e-governance services and information to the citizens for improving service delivery and regular administration, which connects 25 Secretariat Offices. The State Government has integrated data, voice and video communication across its nine existing offices and ten newly identified buildings through SecLAN 2.0, which is an intranet.

Bihar State Data Centre 2.0 and Private Cloud : This comprises a high-end and state-of the art IT infrastructure for delivery of shared, reliable and secured communication services for hosting and managing the e-governance applications of state and its constituent departments. SDC is envisaged to establish a robust infrastructure to enable the government to deliver the services quickly and effectively to its stakeholders. It also incorporates the Private Cloud project as a subset of SDC project. Provision of hardware, networking and connectivity, web applications, e-commerce, IT training and an entire gamut of direct and indirect IT businesses has been done under BSEDC Cloud. This is equipped with Open Stack and N-Flash Drive. Open Stack controls large pools of compute, storage and networking resources through the data centre, while N-Flash Drive allows users to store files on their servers, synchronise files across devices and share files. For disaster mitigation and contingency, a separate BSEDC DR CLOUD has been set-up.

Wi-Fi Project : It provides free internet connectivity to the students, teaching and non-teaching staff, guest visitors of the campus of Government Universities, Constituent Colleges and other academic institutions of the state. As on November 2019, a total of 2.3 lakh users availed this facility. Apart from the internet accessibility, video conferencing, biometric facility, CCTV surveillance, and many awareness programmes of education system are implemented through this.

Sahaj Taknik Yojana : This yojana commenced in 2018 for deploying total digital solution for helping people to discover their entitlements and avail the benefits of social welfare schemes and government-to-citizen (G2C) services. The portal as well as the mobile-app have been made live for more than 100 schemes of various departments and 10 more schemes related to the Departments of Labour Resources and Minority Welfare are under progress.

Bihar AADHAR Authentication Framework (BAAF) : It is an umbrella framework which enables all adhar-based transactions to authenticate the identity of residents electronically, in a safe and quick manner, making service delivery more effective and efficient. Various departments have been integrated with the BAAF applications as a sub Authentication User Agency to use authentication services while delivering the service.

National Optical Fiber Network (NOFN) / Bharat Net : It is planned to connect all Gram Panchayats (GP) in the country with 100 MBPS speed broadband connectivity. As on September 2019, a total of 5773 GPs in Bihar have been connected through the NOFN.

Mobile Service Delivery Gateway (MSDG) : Started in 2013 to provide m-governance through SMS services with different IT projects.

Service Plus Framework : Implemented with an objective of paperless work in the different departments by computerised backend system (digitised). Currently, 33 services of Labour Resources Department, 11 services of General Administration Department and 8 services of Social Welfare Department have migrated to this platform.

New IT Institutions : The State Government is working towards making Bihar an Information Technology (IT) Hub. Towards this objective, a decision has been taken to build an IT city at Rajgir (Nalanda) and 111 acres of land have already been acquired. In addition, an IT tower and an IT park are being established in the state capital of Patna and the land is already acquired. The National Institute of Electronic and Information Technology (NIELIT) has been provided 15 acres of land in Bihta and one acre each for opening of additional centres at Buxar and Muzaffarpur. For training of students belonging to the deprived sections of the society, efforts are being made by the State Government and an MoU has been signed with the Centre for Development of Advanced Computing (C-DAC) Pune. Further, a Software Technology Park of India (STPI) has been provided 2 acres of land free of cost on long-term (30 years) lease for establishment of Park in Darbhanga and Bhagalpur. Apart from these STPI, the STPI Patna is being expanded at a cost of Rs. 26.55 crore. For research in the field of Medical Electronics, a matching grant of Rs. 25 crore has been approved to establish an Incubation Centre at IIT, Patna (Bihta). A full-fledged centre of the C-DAC is also going to be functional by June, 2020.

Apart from the expansion of the above ICT infrastructure, internet accessibility and telecommunication penetration are also necessary to access the e-governance services to every citizen. Bihar has a tele-density of 74.3 connections per hundred people which indicates that almost

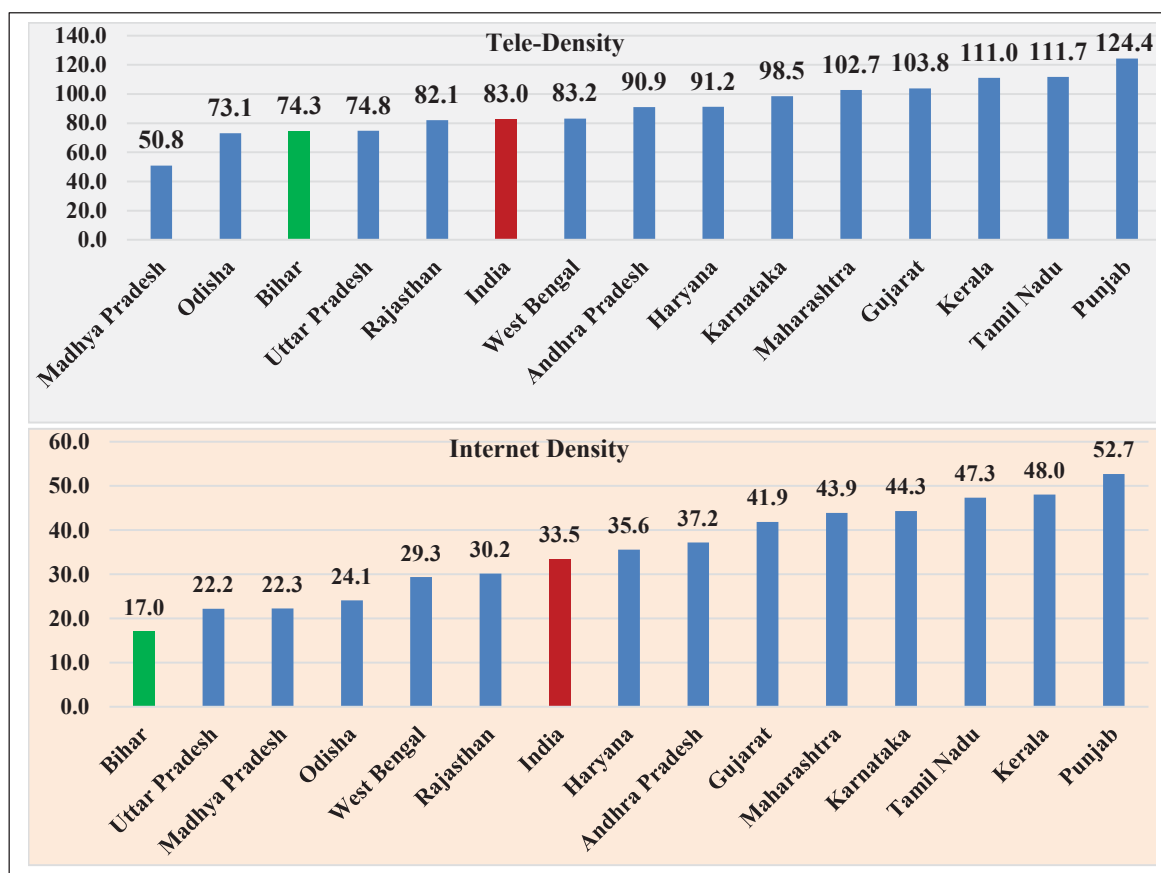
every household is having at least a telephone connection. The access of internet in Bihar is less than one-fifth of the population, which is a matter of concern, however, the coverage of Bharat Net extends to more than 55 percent of the GPs which may provide the e-governance facilities to the adjacent locality (Table 14.1). Aadhar is required for getting benefit of many e-governance programmes and its coverage is nearly 85 percent. These coverages need to be expanded to reach the last mile of e-governance services. The lack of financial literacy, financial inclusion, computer literacy, AADHAR entitlement, etc. limit the success and accessibility of e-governance programmes. The combined efforts of the State and the Central Government have been taken to resolve these limitations through Jan-Dhan Yojana, Direct Benefit Transfers (DBT), AADHAR seeding, Skill India, Bihar Skill Development Mission, SHG formation, Digital Saksharta Abhiyan (DIKSHA), Learning Management System, Pradhan Mantri Gramin Digital Abhiyan, SWAYAM etc.

Table 14.1 : Coverage of Mobile and Internet Services and Aadhar in Major Indian States (as on March, 2018)

State	Tele-density	Internet Density	GP Coverage under Bharat Net	Aadhaar Coverage
Andhra Pradesh	90.9	37.2	0.0	92.5
Bihar	74.3	17.0	55.6	84.1
Chhattisgarh	—	—	36.6	94.1
Gujarat	103.8	41.9	31.5	95.5
Haryana	91.2	35.6	93.7	100.0
Jharkhand	—	—	32.4	93.5
Karnataka	98.5	44.3	100.0	92.9
Kerala	111.0	48.0	100.0	100.0
Madhya Pradesh	50.8	22.3	45.6	90.1
Maharashtra	102.7	43.9	48.1	93.1
Odisha	73.1	24.1	38.5	93.2
Punjab	124.4	52.7	49.4	100.0
Rajasthan	82.1	30.2	88.6	86.5
Tamil Nadu	111.7	47.3	—	93.4
Uttar Pradesh	74.8	22.2	49.2	87.2
West Bengal	83.2	29.3	60.3	93.9
All-India	83.0	33.5	42.4	89.5

Source : SDG Report, NITI Ayog,

Chart 14.1 : Density of Telephone and Internet Connection in Major States of India (2019)



14.2 Maintenance of Law and Administration

Essential duties of any government – protection of public life and property are the most important. Maintenance of Law and Order is a State subject under the Seventh Schedule of the Constitution of India. The primary duty of the State Governments is to prevent, detect, register and investigate crime and prosecute the criminals. The Central Government, however, supplements the efforts of the State Governments by providing them financial assistance for modernization of their Police Forces in terms of weaponry, communication, equipment, mobility, training and other infrastructure facilities under the Scheme of Modernization of State Police Forces. Further, intelligence inputs are regularly shared by the Central Security and Intelligence Agencies with the State Law Enforcement Agencies to prevent crime and law and order-related incidents. It is a very complex issue and ICT may play an important role to maintain the law and administration through many ways. The different e-services are listed below which helps to enforce law and order and speed-up administration in the state:

Crime and Criminal Tracking Network and System (CCTNS): This aims to formulate a comprehensive and integrated system for enhancing the efficiency and effectiveness of policing

through IT enabled state-of-the-art tracking system, as also the investigation of crime and detection of criminals. It will connect all police stations and allow data sharing related to all crimes, criminals, case diaries, etc. This also provides the facility of uploading of FIR by the districts which can be easily downloaded by citizens. Till date, nearly 9 lakh FIRs have been uploaded. The total approved fund is Rs. 280.17 crore, of which Rs 34.16 crore has been utilised so far.

Cyber Security: Indian Computer Emergency Response Team (CERT-IN) deals with cyber security threats. It collects data, analyses dimensions of cyber incidents, forecasts and alerts cyber security incidents. Apart from this, a scheme of cyber-crime prevention against women and children (CCPWC) is implemented with the objective of limiting cyber threat to women and children. A sum of Rs. 2.47 crore has been provided for this scheme. Additional cyber security initiative by the Central Government is being taken in accordance with the objectives of the National Cyber Security Policy, which envisages formulating a secured cyber eco-system in the country.

e-Prison : It is an e-governance cloud-based project initiated since 2017-18, which integrates all the activities related to prison and management in jails that provides vital information about the inmates lodged in real-time environment to the prison officials and other entities involved in the Criminal Justice System. It also facilitates online request and grievance redressal. The State Government has provided Rs. 5.13 crore as grant for digitisation of prisoner's information through prison ERP project. During the last five years (till September 2019), a sum of Rs. 12.78 crore has been spent. Further, Prison Calling Solution Project with biometric calling solution that enables jail inmates to make a definite number of calls in a prescribed time span to have conversation with their near relatives and seek legal advice. Calls are recorded for monitoring purposes.

CCTV and VC Surveillance

- (i) **Jail-Court VC and Jail CCTV Surveillance Project** is a CCTV-based surveillance system and video conferencing facility in all district jails and sub-divisional jails of Bihar. The CCTV system helps monitor unlawful activities, which affect the day-to-day proceedings of the jail, and security of the jail officials and prisoners, whereas VC facility helps to carry out the court hearing from the jail itself. Based on the technical feasibility survey, 58 Jails and 53 Courts (8 Central Jail, 50 Sub Jails and 53 District Courts) were found suitable for implementation of CCTV Surveillance System and VC.

- (ii) **Multi VC Project** is to be implemented for setting up a VC system for the trial of the accused who is a jail inmate. The main objective of the project is to make a live VC trial online showing the accused, the Judge, the witness and the lawyer on a single screen. It will also include IG (prison), Patna, Bihar Institute of Correctional Administration (BICA), Hajipur and Patna High Court.
- (iii) **Court CCTV Surveillance Project** is being implemented in response to the recent increase in the unlawful and socially disturbing activities in and around the court premises which affects the day-to-day proceedings of the court, security of the court officials and other citizens present in the court premises. The security of the prisoners brought to court for proceedings, police personnel present and the judges is ensured under CCTV Surveillance system.
- (iv) **Police Station and Prison IP-Based CCTV Surveillance System** is to put police stations and interrogation rooms under surveillance of CCTV cameras. The State Government has decided to install CCTV cameras as a step towards tackling the allegations of police atrocities at police stations and prisons with a view to checking the cases of alleged human rights violation, frequent complaints regarding custodial violence and deaths in police lock-up. The State Government has approved Rs. 282 crore for 960 PS. Till date, CCTV cameras have been installed in 625 PS. This will help in monitoring, supervision and prevention of ongoing custodial torture, harassment, malpractices, bribery, etc. inside the police stations. The system will also ensure security of police stations and officials from Maoist and Naxal attacks, including threats of mob attack, etc. It may also help in tracking down attendance, performance and the works being done at the grass-root level from a central place such as headquarters or control room.
- (v) **Smart City Mission Project for Patna** was originally started in 2017 for safe city surveillance in public places.

Emergency Response Support System (ERSS) : This would comprise computer-aided dispatch (CAD) with AVLS (Automatic Vehicle Location System) facility, which will have digital trail of all activities for better accountability and responsibility. It would provide a unique emergency number 112 to integrate police, fire, medical services, disaster management, etc. This system will further be integrated with city surveillance, traffic management system, and CCTNS. A sum of Rs. 12.29 crore has been provided from the Nirbhaya Fund by the Central Government under this system.

Bihar Police Helpline (18603456999) : A Centralised Grievance Redressed Cell (CGRC) with IVR (Interactive Voice Response) facility started since February, 2017 where anyone can file a complaint through making a call or by using CGRC web portal and through mobile App. After registration of the complaint, the applicant will get a unique token number through SMS. Till date, around 30,000 transactions have been registered by around 22,000 applicants. A Central Government initiative of Nirbhaya App provides interface to face emergency situations of women or any other individual.

E-court : It has been set up at 68 locations out of 79 locations through Judicial Service Centre which is a citizen service interface counter for provision of various services such as case filing, status enquiry, etc. in 37 District Courts and 42 Sub-Divisional Courts. It is utilised as a point for reception-cum-enquiry and also as a Central Facilitation Centre by providing services like case status, certified copies, inquiries etc. The people of the state have been facilitated with an **e-filing** IT-enabled platform, which offers hassle free and convenient online case filing and payment facility. It is successfully tested in the Darbhanga District Court. Further, **Case Information System (CIS)** is installed in the High Court and 79 other lower courts for digitisation and digital preservation of case records since October 2016 and a total of 7.66 lakh cases have been digitised including 2.72 lakh civil and 4.94 lakh criminal cases via **Document Case Management System (DCSM)**. It is helping in monitoring and analysing the day to day progress work of Judicial Officers of all the districts and its subordinate courts. The State Government has facilitated cloud-based court on pilot basis in Gaya District Court for implementation of cloud computing CIS. All processes for migration of court to cloud have been completed and users have been given URL for testing the software on their own and provide feedback for further improvement.

E-Kamaan : It is an e-governance project which helps to allot duty among home guards by district administration for maintenance of law and order and other duties in bank and other institutions on a daily basis.

Bihar SPARROW : Smart Performance Appraisal Report Recording Online Window System is an online system based on the comprehensive performance appraisal dossier maintained for all officers of Bihar Administrative Service, Bihar Police Service, Bihar Prison Service, Bihar Prosecution Service, Bihar Home Guard Service and Bihar Fire Service. The aim of the system is to facilitate the e-filing of PAR by officers in a way that is not only user-friendly, but also accesses within a prescribed time limit to get PARs of all officers recorded.

Child Labour Tracking System (CLTS) : It is a web-based tracking system launched on June 12, 2016, which provides rehabilitation and monitoring for rescued child labour. After the release of the child labour, a sum of Rs. 3000 is provided as an economic assistance by the Labour Resources Department, Rs. 5000 from the District Rehabilitation Fund Assistance and Rs. 20,000 from the accused (according to the order of the Supreme Court). In addition to the above-mentioned assistance, the child labour will get an additional amount of Rs. 25,000 from the CM Relief Fund after getting registered on the portal of CLTS. Till date, 1530 child labours have received this amount through annuity scheme. The total registered child labours under CLTS are 5759 as on December, 2019.

E-Municipality Bihar : This project has been rolled out by the Urban Development and Housing Department in February 2016, with the objective of providing integrated end-to-end facilities to citizens in a transparent and time bound manner. It provides civic services to common citizens via a single-window system available at municipal bodies. It includes all citizen services related to the urban local bodies like property tax, building permission, birth and death certificate, RTI, trade licences, etc. Around 7.0 lakh beneficiaries have been connected to avail e-municipality services involving amount of Rs. 210 crore. The municipal e-governance modules have been launched in March 2019, which provides online citizen centric services like payment of property tax, birth and death certificate, building permission and occupancy certificate, trade licence RTI, HR management, monitoring of schemes, VC, online reporting, GIS-based property survey, etc. to the different stakeholders including common citizens, professionals, commercial entities, construction companies, etc. The accounting system has been improved through double accounting system and use of PFMS/ CFMS. This module facilitates the urban local body with e-tendering, GeM portal, e-office, and effective monitoring and control through CCTV cameras and bio-metric devices. The fund is being transferred after verification through AADHAR and GIS coordination.

E-Office : It is developed by National Informatics Centre (NIC) and aims to usher in more efficient, effective and transparent inter-government and intra-government transactions and processes. The product is built as a single reusable system by bringing together independent functions and systems under a single framework to enhance transparency, increase accountability and transform the government work culture and ethics. Till September 2019, 43 departments / PSUs/ Districts on border are connected through 4876 users' interface.

Human Resource Management System (HRMS) : It is a project related to the General Administration Department, implemented since July 2019, which includes functions of record keeping and maintenance of personnel information (cadre, post, grade pay, salary scale, etc.), service agreement, other payable benefits (pension, leave, provident fund, etc.), e-service book, pay fixation, etc. These functions will be carried out through an online software-based system in a paperless manner covering about 3.5 lakh Government employees at a cost of Rs. 34.1 crore. Required information will be made available to the employees through Email or SMS based on their unique ID. Employees can access this information and carry out transaction through mobile app as well.

E-Niwas : The State Government has been allotting government quarters through online application. It provides transparent speedy allotment of government quarters and applicants can monitor the status form anywhere at any time.

14.3 Fiscal Governance

The fiscal governance is a set of rules, regulations and procedures that influences the fiscal policy preparation, approval, implementation and monitoring. Prudent Public Finance Management (PFM) helps economy to grow at a faster rate through fiscal governance and strategic plan, which in turn help in achieving the objectives of allocative and operational efficiency. PFM governs through the cycle of budget formulation, budget execution, accounting, reporting, external scrutiny and audit. These functions are not easy to manage manually. The world has been experiencing e-fiscal management since the last two decades. IT platform provides mileage to estimate, operate, monitoring and evaluation in a scientific manner. The State Government is using CFMS for execution of state budget, while the Central Government is using PFMS for managing Union Finances. The following e-governance platforms provide paperless, real-time and online services related to e-fiscal management in the state:

CFMS : The fiscal management was executed for the first time through IT-enabled module in Bihar in 2008 through the CTMIS (Comprehensive Treasury Management Information System) for constant tracking of revenues and expenditures. The transactions of Government are channelised through the treasuries of the state. It collects revenues, books expenditures and maintain the records of the treasuries systematically for future accountability. These functions were executed through the CTMIS till 2018-19. Since April 2019, the State Government has reformed the financial management modules and has come up with a latest technology, which

rolled out the robust IT with high security features well-equipped with latest PFM procedures known as CFMS (Comprehensive Financial Management System). For the first time, CFMS connects all departments, treasuries, DDOs, Reserve Bank of India and other government offices. It provides real-time information regarding receipts, expenditures, debt and investments, including ways and means, among the stakeholders to facilitate office-wise and agency specific policy decisions. This keeps the stakeholders informed and updated through online access of data and information at any point of time. The data is captured at the source of its origin for elimination of redundancy and anomalies to avoid time and labour cost. Automatic reconciliation of receipt and expenditure is possible at the departmental and treasury level through the CFMS and minimal reconciliation is required. It also helps in bringing effective financial discipline in terms of more accurate budget preparation and effective expenditure control, efficient monitoring and tracking of budget as well as debt, cash flow management, etc. In addition, it provides fast and transparent service delivery through faster payment of invoices/ claims of vendors/ employees, speedy refund, instant acknowledgement, etc. The high-security digital certificate of authorisation has been ensured through digital signature for authorisation of payments through online payment processing via e-kuber of RBI. E-treasury has been established to receive revenues of the Government in the form of e-receipt through Online Government Revenue and Accounting Management System (O-GRAS). O-GRAS provide an IT-enabled platform to facilitate online tax payment, etc. to provide easy and convenience services to the citizen, entrepreneurs, businessmen, traders etc. CFMS facilitates all stakeholders through email and SMS alert after creation of a user ID or any activity like payments, work flows, user access verification and bill authorisation via OTP confirmation. A total 5.39 lakh stakeholders are connected involving transaction of Rs. 3,09,208 crore under the ambit of CFMS. A CFMS cell has been established to resolve any type of queries, issues, bottlenecks and grievances related to the different modules of CFMS.

PFMS : Public Finance Management System is an IT-based module executed by the Office of the Controller General of Accounts (CGA). It is implemented with the objective of tracking funds released under all Union Plan Schemes, and expenditure reporting on real-time basis at all levels of programme implementation since 2009. Prior to 2009, it was known as Central Plan Schemes Monitoring System (CPSMS). Further, the area was extended to cover DBT to the beneficiaries in all the Union Schemes in 2013. After a year, the digitization of accounts was the main focus to be achieved through PFMS. It is an e-governance tool which enables sound PFM of Union Government by creating an efficient fund flow mechanism and payment-cum-accounting network. It facilitates reliable and real time management information system for providing an effective decision support system to all the stakeholders. It includes different budgetary activities like payments under Central Sponsored and Central Sector Schemes, tax and non-tax receipts, and also

functions such as a comprehensive HRMIS and self-contained pension as well as GPF modules. Currently, PFMS offers the facility of Core Banking Solution (CBS) of all Public Sector Banks, Regional Rural Banks, major private sector banks, Reserve Bank of India, Post Office Banks and Cooperative Banks.

Goods and Service Tax Network : GSTN is a A unique and multifaceted IT initiative for the first time to establish a uniform interface for the tax payer on a common and shared IT platform among the Centre, States and RBI. The portal envisions becoming a trusted National Information Utility (NIU) which provides reliable, efficient and robust IT backbone for the smooth functioning of the Goods and Services Tax (GST) regime enabling economic agents to leverage the entire nation as One Market with minimal indirect tax compliance cost.

GeM : Government e-Marketplace is implemented since April 01, 2018 in Bihar with the objective to enhance transparency, efficiency and speed in public procurement. It is a single-window solution for online procurement of goods and services, which facilitates e-bidding, reverse e-auction and demand aggregation for optimum utilisation of limited resources of the Government. All common use items like computer, printer, photocopier, paper and stationery, as well as other office items like furniture, and bottled water, for example, are being purchased through GeM. It is a Business to Government (B2G) platform which has eliminated multiple levels of manual, sequential verification and decision-making process that leads to dramatic reductions in lead-time in Government procurement. This platform has opened attractive new options by eliminating intermediaries and guaranteeing prompt release of payment to the sellers. The payment provides end-to-end solution, integrated with the banking system through CFMS or treasury management system, ensures transparent and corruption-free procurement and bidding.

E-Procurement System : A real-time bidding solution for buyers that enables users to participate in the tendering process by utilising the online solution of TENDERWIZARD. This solution provides faster and easy access of information related to the tenders of the Government of Bihar and BSEDC limited.

14.4 Public Service Delivery

Direct Benefit Transfer (DBT) was initiated with the aim to reform public delivery mechanism by re-engineering the existing process in the welfare schemes. This aimed at speedy and convenient transfer with a view to ensure accurate targeting of the beneficiaries and elimination of duplication and fraud through Aadhar and bank account linkages.

E-Labharthi : It is a web-based unified portal which provides several e-services to the various departments such as Education, Social Welfare, SC/ST Welfare, BC/EB Welfare, Minority

Welfare, etc. related to different services including social security pension, disability allowance as well as free bicycles for girls, dress and reading materials, scholarship relating to the various schemes being implemented. Till date, 68 lakh pensioners have been getting benefited through the system and now, benefits of Mukhyamantri Vrudhjan Yojana has been provided to 25 lakh beneficiaries.

Education : The State Government is committed towards human development of the state and education is on the central focus, since the government allocates major share to this sector to create an educated society. It is decided to provide DBT through the MedhaSoft application software, which captures data and information regarding beneficiaries (bank account related, AADHAR no. etc.) via **e-Labharthi portal**. The students of the state are heading towards attainment of higher education. The State Government has been supporting students to pursue their education through several financial support and rewards in the education sector, which are given in Table 14.2.

Table 14.2 : Direct Benefit Transfer under Different Schemes of the Department of Education

Scheme Name	Beneficiary Category	Social Category (SC/ST/BC/EBC etc.)	Amount (in Rs.)
Mukhyamantri (MM) Scholarship Scheme	Boys and Girls from Class I to IV	All Categories (except Musahar & Bhuiya)	50/PM
	Boys and Girls from Class V to VI	All Categories (except Musahar & Bhuiya)	100/PM
	Boys and Girls from Class I to VI	Musahar and Bhuiya	100/PM
	Boys and Girls from Class VII to X	All Categories	150/PM
	Boys and Girls from Class XI and XII with a condition of 60% marks in XI	All Categories	1200/PM
MM Sanitary Napkin Yojana	Girls from Class VIII to XII	All Categories	300/PY
MM Cycle Yojana	For all students of Class IX	All Categories	3,000
MM Balika Poshak Yojana	Girls from Class IX to XII	All Categories	1,500/PY
MM Chhatrawas Yojana	Boys and Girls from Class I to XII	All Categories except General	1,000/PM
MM Balika Protsahan Yojana	Girls from all categories and Boys from EBC/ SC/ ST	1 st division in Matric	10,000
MM Vidyarthi Protsahan Yojana	Boys from General/ BC/ Minority	1 st division in Matric and family yearly income is upto Rs. 1.5 Lakh	10,000
MM SC/ST Medhavriti Yojana	Boys and Girls from SC/ST	2 nd Division in Matric	8,000
MM SC/ST Medhavriti Yojana	Boys and Girls from SC/ST	1 st Division in Intermediate (10+2)	15,000
MM SC/ST Medhavriti Yojana	Boys and Girls from SC/ST	2 nd Division in Intermediate (10+2)	10,000
MM Protsahan Yojana under Kanya Utthan Yojana	Girl Students after completion of graduation	All Communities	25,000

Source : Department of Education, Government of Bihar

Management Information System : In order to assist educational administrators and decision makers at the elementary level, Bihar Education Project Council (BEPC) has been maintaining MIS at the state, district and sub-district levels since the inception of Sarva Shiksha Abhiyan. This supports the decision makers through collection, organization, distribution and storage of information for analysis, control and integration in the planning process at each level. **Education MIS** provides information regarding the educational issues and management of schools. To avoid duplicity of efforts, instead of using two separate systems, viz. DISE (District Information System for Education) for elementary and SEMIS (Secondary Education MIS) for secondary, U-DISE (Unified DISE) has been used since 2012. **Project MIS** aims to monitor project activities in terms of physical and financial progress against the target. The monthly, quarterly and yearly progress reports are generated at sub-district, district, state and national levels for monitoring of project activities through the portal of PMIS. It generates various types of reports based on budget, expenditure, reimbursement, physical vs financial assessment, etc. **Financial MIS (FMIS)** is a full-fledged double entry accounting system operated through Tally and has been installed across the state since 2014 to maintain day-books and books of accounts. Apart from these, MIS, BEPC have been utilising other MIS such as Student Attendance Management Information System (**SAMIS**), Household Management/Bal-Panji, which are also being utilized to assess the physical and financial progress of districts.

Bihar Easy School Tracking (BEST) : It is an android-based application which helps in real-time monitoring of school activities and supports the decisions-making process to strengthen and regulate the elementary schooling. It facilitates all stakeholders including parents, teachers and functionaries of 39,000 schools. This application also works in offline mode in interior areas and uploads after getting the connectivity on real-time basis.

Bihar School Examination Board : BSEB is committed to provide IT-enabled platform to students right from filling of examination form to publishing of results through pre-exam and post-exam software. Further, the Board has initiated digitisation of certificates, which may be uploaded on the portal from the year 1984 to 2016. It has already been completed for the period of 2005 to 2016. Through this portal, anyone can verify certificates anytime from anywhere. Board has taken the another step to build examination halls in all nine divisions of the state, which equipped with CCTV cameras with an objective of taking malpractices free examination, storage of exam papers and their evaluations.

Mid-day Meal Scheme : Web-Based Monthly MIS is introduced in 2011 to procure data from 71,000 schools on a monthly basis. The Block Resource Person collects data from the Headmasters and uploads onto this MIS on the 15th of every month. The objectives of this MIS are monitoring of the schemes, fund flow management, food grain flow management, cook-cum-helper details and other infrastructures available in schools. **Dopahar** is a programme of Interactive Voice Response System (IVRS) started in 2012 to obtain information from all the schools on real-time daily basis to collect data regarding attendance, meal served, adherence to menu, adequacy of cooking staff, adequacy of food grain and fund for the coming week.

Health, Water Supply and Sanitation

Health : Bihar is a disadvantaged state with the lowest per capita income in the country. Therefore, it is necessary for the government to provide public health services at an affordable cost. Several e-governance programmes have been implemented in the area of medical and public health to improve its quality, accessibility, handiness, accountability and transparency. These IT services are applied in the field of bidding, procurement, health MIS, human resource management, file management, health management system, online OPD registration, GIS application for all health facility locator, etc.

Health Management Information System (HMIS) : It is an online reporting platform, started since 2008, which facilitates timely and regular reporting of health management system. HMIS report is used for monitoring and reviewing the activities of health programmes at every level of health facilities (HSC / APHC / PHC / RH / SDH / DH / MCH) as well as for the planning purpose. Around 12,500 health facilities are reporting their service delivery data on a monthly basis. In addition, **DHIS (District Health Information System)** has been developed for capturing, reporting and analyzing the data, which are not being captured on the HMIS portal like – VHSND, Bio-Medical Waste Management, NRC, COTPA, Family Planning (additional data elements), training, etc. **Health System Progress Tracker (HSPT)** provides a single-window outlay to access data from various sources including mobile and computer/laptop. The data received through this portal is analyzed and further used for decision making at all levels of the governance. **Rashtriya Bal Swasthya Karyakram Portal** has been developed for capturing PHC-wise detailed information of the AWCs and schools, preparation and uploading of micro plan, daily attendance of mobile health team, daily and monthly reporting of screened children.

Sanjivani : It is an online OPD registration and drug distribution system, working since 2014. It has off-line as well as online module of the hospital management system which is functional in all PHCs, RHs, SDHs and DHs. It has been integrated with 'Mera Aspataal' Application of MOHFW, GoI for getting feedback from patients regarding service delivery extended to patients. Almost 2.5 crore people got benefitted every year in the state. It provides OPD registration of patients and computerized prescription with unique ID, roster duty of doctors, on-line doctor's appointment, computerization of drug distribution to patients, computerization of prescribed radiology and pathology tests, regular monitoring of drug availability, SMS to patient about drug distribution, and radiology and pathology report from hospital, monitoring of doctor-wise and hospital-wise OPD performance, etc.

RCH (Reproductive and Child Health) : This portal is designed for early identification and tracking of the individual beneficiary throughout the reproductive lifecycle of women and promotes, monitors and supports the reproductive, maternal, new-born and child health (RMNCH) schemes to capture information on all RCH-related services, including family planning, maternal health, child health and immunization. Application facilitates timely delivery of full component of antenatal, postnatal and delivery services and tracking of the children for complete immunization services. RCH portal meets the requirements of RMNCH programme with the provision of family planning services, quality and comprehensive ANCs and alerts to ANMs, beneficiaries and Health Managers. During 2018-19, a total of 10.4 lakh women and children were benefitted as compared to 8.6 lakh in 2019-20 till September 2019.

Pradhan Mantri Matri Vandana Yojana (PMMVY) : It is a DBT scheme implemented throughout the state since January 2017, where registered pregnant women get Rs. 5000 each in three instalments on fulfilling certain conditions for each instalment — first instalment of Rs. 1000 on early registration of pregnancy within three months of the LMP (last menstruation period), second instalment of Rs. 2000 after six months of pregnancy and attending at-least one ANC (Ante Natal Check-up) and third instalment of Rs. 2000 after delivery and completion of first round of child immunization. Apart from these three instalments, a beneficiary would be entitled for an additional amount of Rs. 1000 if the delivery takes place at a Government Institution or registered private institutions under the Maternity Benefit Scheme of the Health Department. This way, the total amount a pregnant woman could avail is Rs. 6000.

E-Janani Portal : This has been developed for entry of beneficiary details of Janani Bal Surakhya Yojana for the payment of Rs. 2000 to mothers for first two female births. In addition, a payment of Rs. 2000 for complete immunization of female child within 2 years of their birth under Mukhya Mantri Kanya Uthan Yojna.

Ayushman Bharat- National Health Protection Mission (AB-NHPM) : It has subsumed the Rashtriya Swasthya Bima Yojana (RSBY) and the Senior Citizen Health Insurance Scheme (SCHIS) and provides health cover of upto Rs. 5 lakh per family per year for secondary and tertiary care hospitalization to poor and deprived families, taken from the database of Socio-Economic Caste Census, 2011 or from the Ration Card. A total of 23.3 lakh beneficiaries are connected and have got golden card, involving Rs. 113 crore till September 2019.

BMSICL : Bihar Medical Service Infrastructure Corporation Limited is currently processing all tenders for drug, medical equipment, infrastructure, etc. through e-tendering and e-proc IT modules. It procures all items such as tablets, biometric devices, suction machine, nebulizer, fogging machine, etc. through GeM portal. **Drug Vaccine Distribution Management System (DVDMS)** is an IT platform to automate various activities like drug and vaccine supply chain management, Health Financial Management System (HFMS), e-aushadhi, Equipment Maintenance and Management System (EMMS) of BMSICL. **EMMS** deals with purchase, inventory management, distribution of equipment and furniture to various regional and district drug warehouses as also distribution to the lower level upto the end consumer in the supply chain. **HFMS** is a financial module developed for payment of drugs to the suppliers and provides complete history of delivery, quality check, tax, and final payment status through online on real-time basis. **E-PMS** is a web-based application for the monitoring of infrastructure work being executed by BMSICL. This application facilitates the approval process of proposal, DPR, etc. and also contains a mobile based app to monitor progress of onsite project work. It also keeps the records of stakeholders like contractor, consultants, etc.

Other Initiatives : **ANMOL (ANM On-Line) App** is android-based online system taking real-time entry by ANM at the time of service delivery such as medicine, etc. using Tab on the NCD portal. **NCD Portal** helps in visualisation of disease burden and monitors the gaps. **ManavSampada (e-HRMS)** is a complete HR Life Cycle System, which has been implemented

to maintain HR record of contractual employees of the State Health Society. Apart from these services, **e-Office** facilitates tracking letters and file, while **Call Centre Application (104)** helps in grievance redressal, doctors' advice and health helpline and **Darpan Plus** provides real time online monitoring of health services in the government hospitals and health centers of the state. Darpan Plus is used by Medical Officer In-Charge (MOIC), Medical Officer (MO), Block Health Manager (BHM) and Supervisory Personnel. Apart from giving a picture on health facility functioning, this App also validates the HR personnel of a health facility as well as give the detailed picture of services like IPD, OPD, Drugs, Equipment, Ambulance, Outsourcing, etc.

Water Supply and Sanitation : MIS has been developed to capture data regarding different schemes and tenders as well on real time basis for monitoring. **Online Contractor Registration, Management and Payment System** is also being executed for payment integration and bidding process. **State Quality Monitoring System** is an online module developed for independent engineer for inspecting and monitoring through given schedule of the department and filling it online. Scheme inspections are being carried out easily as the report accessibility is less time consuming. **Mobile Application for Geo-tagging of Hand Pump** is developed for the geo-tagging of the handpumps and is being painted with the habitation ID and the hand pump details have been maintained as the database. **Mobile application for Location Tracker** is an android-based mobile application developed for monitoring the officials of the department. Whether the officials are on the field visit or in the office, their location would be accessible through the application mandatorily between 10:00 am and 06:00 pm. Each location has been tagged with the google map and each movement is trackable through the google map with the timeline narrations. **Water Quality Module** has been developed with parameter inserted for the water quality as reference. This module will help in treating the water for quality upgradation.

Food and Civil Supply : Food security is crucial to achieving sustainable livelihood for the poor and weaker sections of society. **Fair Price Shop (FPS)** automation is implemented to authenticate beneficiary (Aadhar-based biometric authentication) under National Food Security Mission for food grains at the point of sale. **Integrated Ration Card Management System** has been implemented for authentication of beneficiary. The State Government has developed this system in 2015 for smooth **supply chain management** through IT module to track doorstep delivery through GPS, SMS alert and grievance redressal of beneficiaries under the Project Management

Unit. All procurement-related processes in case of paddy are being conducted online through a procurement software and payment is being released within 48 hours through RTGS/ NEFT to registered farmers. **Jan Vitaran Ann System (integrated with RTPS)** is an online web-based application to generate new ration card, modify existing ration card, surrender of ration card, split of ration card, etc. So far, 3.44 lakh new ration cards have been generated and around 0.24 lakh existing ration cards have been modified. The Department of Food and Consumer Protection has developed **online inspection management system**, an android-based mobile application, for online inspection and reporting on randomly selected Public Distribution Shops.

Social Welfare Services : The State Government has always given high priority to the disadvantage groups, including women and senior citizens, and has been providing several social security schemes for the people.

Social Security Pension Management Information System (SSPMIS) : It is a web-based application developed in November 2017, envisioned to track the entire beneficiaries through assigning a unique code which leads to effective utilization of funds. The different pension schemes of the Central as well as the State Governments are executed through this single window platform. It is also integrated with E-Labharthi portal for payment process. It provides transparent implementation, centralized database, authentication of targeted beneficiary through ADHAAR, online application tracking at all levels, online demand generation and fund allocation, online payment solutions, day to day and consolidated reconciliation, digital signature authentication, various MIS reports and monitoring of schemes on real-time basis. **Mukhyamantri Vridhhjan Pension Yojaya (MVPY)** has also been channelised through SSPMIS. In addition, **E-Suvidha Portal** has been developed in September 2018, to ensure timely payments through DBT. The State Government has further developed several IT modules such as Utilisation Management System, Bihar Social Security Grievances Redressal System and Online Attendance Management System to strengthen the social welfare schemes through monitoring of expenditure, registering grievance related to state social security pension and monitoring of attendance. Kanya Utthan Yojana has also been executed through this portal. The details of DBT under different schemes are shown in Table 14.3.

Table 14.3 : Provision of DBT under Social Welfare Scheme in Bihar

Scheme Name	Age Group	Category	Rate (in Rs.)
Indira Gandhi National Old Age Pension Scheme	60-79 Years	BPL Family	400/-PM
	80 Years and above	BPL Family	500/-PM
Indira Gandhi National Widow Pension Scheme	40-79 Years	BPL Family	400/-PM
Indira Gandhi National Disability Pension Scheme	18-79 Years (Disability >=80 %)	BPL Family	400/-PM
National Family Benefit Scheme	18-60 Years	All Category (Sudden Death of Earning Member)	20,000/-
Laxmibai Social Security Pension Scheme	18 Years and above	BPL Family (Annual Income less than Rs 60,000)	400/-PM
Bihar Disability Pension Scheme	All Age Groups (Disability >=40 %)	All category	400/-PM
Kabir Antyesti Anudan Yojana	BPL family Members	All category	3,000/-
Chief Minister Family Benefit Scheme	18-60 Years	All Categories (Sudden Death of Earning Member)	20,000/-
Bihar Shatabdi Leper Welfare Scheme	Visible Deformities Grade II	All Categories	1,500/-PM
Bihar AIDS Peedit Kalyan Yojana	All Age Group	All Categories	1,500/-PM
Chief Minister Disabled Marriage Grant Scheme	Disabled (Female -18 Yrs) and Male (21Yrs)	All Categories	1,00,000/-
Muslim Parityakta Mahila Sahayata Yojana	—	Divorcee Muslim Woman	25,000/

Source : Social Welfare Department, GoB

Integrated Child Development Scheme (ICDS) : Aangan App has been developed and loaded onto the Tabs for monitoring of all AWCs by Lady Supervisors and CDPOs. This application is used during the inspection and its reporting of opened Anganwadi Centers, Supplementary Nutrition, children present etc. This app is also used to take attendance of Anganwadi Workers and helpers. It is being used for verifying the vouchers of purchases done under the Supplementary Nutrition Programme (SNP). Based on the attendance and the uploaded vouchers, the Anganwadi Workers are paid their honorarium through DBT directly and SNP fund is sent to the Bank account of Anganwadi Vikas Samiti. The MIS of ICDS is being implemented since June 2011 and is operational in all Anganwadi Centers (AWC) for online reporting. This MIS has been replaced by the **Rapid Reporting System** to strengthen ICDS, which has been rolled out for web-enabled data entry system for entry of revamped reporting formats at State/UT level. It has the objectives of online monitoring of all critical indicators from Supervisor Level onwards through Anganwadi Monthly Progress Report's timely collection, updation and dissemination of information to all the

stakeholders anytime. **ICT RTM (Mobile Based Real-Time Monitoring System)** has been running in all the AWC equipped with smart phone for reporting the activities conducted since October 2019. The **National Nutrition Mission (Poshan Abhiyan)** has been initiated by the Central Government after successful completion of World Bank's ISSNIP Project in June 2018 to combat malnutrition in all its forms in the country. It is also called Poshan Abhiyan and it envisaged to sensitize each and every home with pregnant women, young children and nursing mothers. ICT-RTMS was a successful pilot of the ISSNIP, which is taken forward to the NNM to replicate in 11 districts (Aurangabad, Banka, Begusarai, Gaya, Jamui, Katihar, Khagaria, Muzaffarpur, Nawada, Purnea and Sheikhpura). Under this, the smart phone procurement is in process. **Training MIS** is a web-based software which is being developed for management of training programme conducted for ICDS functionaries. The core objective of this project is to strengthen data compilation, analysis and making decision related to the training of ICDS functionaries. **Grievances Redressal System (GRS)** will be executed soon and will work as a single connecting point for information, feedback and grievance management. The objective of the GRS call center is to establish a direct communication channel between the citizens and the directorate.

Transport-Centric Services : Citizens are facing multiple service-related issues pertaining to the Transport Department such as Driving Licence (DL), Owner Book (OB), registration of vehicle, permit, challan, penalty payment, checkpost and document security, particularly during travel. The State and the Central Governments have developed many IT modules to provide easy, fast and affordable services anytime from anywhere. **E-receipt** facility has been initiated to provide e-payment facility for any service such as driving licence, registration, etc. through the OGRAS portal. **E-challan** has been introduced for recovery of fine on the spot via hand-held device and helps in tracking the person who frequently violate the traffic rules. It is also monitored through CCTV cameras and penalty is being charged through web-e-challan. **M-Parivahan** and **online entry tax at checkposts** facilitate citizens in a hassle-free travel, whereas **digilocker** makes carrying documents like DL, Owner Book, etc. convenient.

PAHAL : It aims to reduce diversion and eliminates duplicate or bogus LPG connections. Under the PAHAL scheme, LPG cylinders are sold at market rates and entitled consumers get the subsidy directly into their bank accounts. This is done either through Aadhaar linkage or bank account linkage.

Right and Grievance-Based Services

Jaankari : It is an e-governance system designed to enable a citizen wishing to file an application for seeking any information under the **Right to Information (RTI)**, Act without any hassles of physical movement for purchase of postal order (for the requisite RTI application fee of Rs.10/-). The primary and mandatory requirement is to charge the RTI application fee (Rs.10/-) from the citizen without involving a physical transaction of money on behalf of the caller.

Bihar Right to Public Services Act, 2011 : With a view to ushering in accountability and transparency as a part of government's ongoing administrative reforms, which provides statutory backing to citizens charter by developing a culture of timeliness, transparency and accountability that help check corruption and weed out intermediaries by simplifying procedures and better monitoring. It provides all applicants with a computer-generated acknowledgement receipt having a unique identity number. This helps them track the status of their applications through SMS or internet. The project was initially supported by DFID with a sum of Rs. 101.55 crore up to FY 2013-2014. Thereafter, it is being supported by the State Government with recurring annual expenses of around Rs.70.20 crore. A total of 3.14 crore applications were received by the citizen through BRTPS in 2017-18, 2.16 crore in 2018-19 and 1.61 crore during the first half of 2019-20.

Bihar Right to Public Grievance Redressal Act : This was enacted in 2015 which ensures a legal right to the complainant of hearing and redressal within a maximum time limit of 60 working days. The law also created a new class of independent Quasi-Judicial Officers who would act as neutral instruments between the Government and employee without any prejudice to either the complainant or the responsible public authority. This legal right completes the three pillars of good governance, viz. right to a) information; b) public services, and c) public grievance redressal. Failure to comply with the mandate attracts penalties and disciplinary action against the respective PGROs or Public Authorities. The Act provides appeals at two levels and another for revision. The State Government has made an investment of Rs. 40 crore and allocates around the same amount annually. During April 2017 to September 2019, around 32 lakh grievances have been addressed.

Bihar Government Servant Grievance Redressal System : It is an e-governance initiative launched on 26.06.2019 for the service-related grievances of the employees and for retirement benefits at the employees of the State Government. It is a system in which service-related complaints are heard by Service Grievance Redressal Officers designated in the district and the departments in the presence of the complainant and the officer. The decision is taken within a

maximum time limit of 60 working days. A provision of appeal has also been made to strengthen this system. The State Government has invested Rs. 4.8 lakh as one-time capital and Rs. 10.0 lakh has been provisioned as recurring annual expenditure. During the last six months of 2018-19, 13,013 grievances has been resolved.

14.5 Disaster Management

E-governance plays a crucial role in evolving inclusive, resilient societies both before and in response to the disasters. Disaster awareness is being provided through the alerts sent to the citizens to prepare themselves for a disaster. The UN Economic and Social Commission for Asia and the Pacific (ESCAP) highlights that the use of ICT during all the phases of disaster risk management. This provides substantial opportunities to reduce disaster risks and enhance coping capabilities. The State Government has also developed many ICT platform to deal with disaster risks. A flood forecasting model has been developed to forecast floods in Bagmati and Kosi Basins with 72 hours of lead time. An Embankment Asset Management System has been set up in the Kosi belt and is being extended to the other rivers. Further, a National Hydrology Project is being implemented for data mining, processing and transmission for further action. A real-time system has been evolved through high quality image for monitoring of flood schemes. Additionally, the Department of Water Resources has developed a web-based system of WSIMS to obtain online progress from the field on the real-time basis.

WSIMS : The WRD Scheme Implementation and Monitoring System helps officials monitor both physical and financial progress of schemes, with real-time planning, implementation and monitoring. It is an e-governance programme which facilitates inspection and spot verification at the field level through effective monitoring. This web application consists of 13 modules which facilitate administrative approvals, tendering, monitoring and evaluation of physical and financial progress, fund allotment, etc.

Flood Forecast Model (FFM) : It provides flood forecast by sending alert 72 hours in advance and consists of five sub models : (i) **Bagmati – Adhwara FFM** has been developed in 2016. This starts from Dheng to Benibad and is extended upto Hayaghat, involving 10 stations in 4 districts (Sitamarhi, Madhubani, Darbhanga and Muzaffarpur). This facilitates flood forecasting and discharge with 72 hours lead time; (ii) **Kosi FFM** started since 2018 use open source software, which comprises four rivers (Kosi, Kamla, Bhutahi Balan and Khando). This model gives forecast 72 hours in advance to 17 stations of seven districts (Supaul, Madhubani, Saharsa, Khagaria, Bhagalpur, Katihar and Darbhanga). This also involves an international territory with 4 stations in

the Kosi region (Barakhshetra, Chatra Bazar, Rajabas and Birpur) in Nepal; (iii) **Gandak River Basin Model** has been developed in 2018 which forecasts discharge of the rivers Narayani and Gandak, at two stations at Narayan Ghat (Nepal) and Valmikinagar (Bihar); (iv) **Flood Forecast Model for Mahananda Basin** has been working since 2018 and gives forecast of water level (stage) of Mahananda at two stations (Dhenghraghat and Jhawa); and (v) **Regional Model** has been designed in 2018 and is operational since 2019 monsoon season. It covers all the significant river networks of Bihar. This gives forecast of water level and discharge of ten rivers at 41 gauging stations in 20 districts of the State, with a lead period of 72 hours.

River Behavioural Analysis Model : This has been working since 2017, based on Satellite Image Input, which is developed for the Kosi main channel. This model helps in the identification of vulnerable sites, braiding and meandering characteristic of a channel based on the output of this model on which, Anti-Erosion Schemes are formulated. Further, the main Kosi Channel has been divided into five reaches, viz. (i) from Kosi Barakhestra to Kosi Barage; (ii) from Kosi Barrage to Kosi Mahasetu; (iii) from Kosi Mahasetu to Basua; (iv) from Basua to Baltara; and (v) from Baltara to Kursela.

Embankment Asset Management System (EAMS) : It contains significant features viz. maps, data, analytical tools, community participation tools, river cross sections, generation of alert from dynamic linking with FFM output and several other features for ensuring efficient and improved flood management. The State Government has developed three EAMS for strengthening of the disaster management system. These are — (i) **Bagmati EAMS** is the first EAMS developed in 2014 under DFID programme through the World Bank for Bagmati-Adhwara river basin. Engineers of the Department of Water Resources in the concerned field formations have also been imparted sufficient training. A total of 100 GPS-enabled Tables have been provided to concerned field officers for ensuring real-time feedback regarding embankment and river status; (ii) **Kosi EAMS** has been executed since 2016 which consists ten Modules. These Modules are : (a) Asset Information Module provides information regarding barrage, embankment, rivers bridges, sluice gates and other assets; (b) Engineering Information Module comprises information related to design of the Highest Flood Level (HFL) and formation level, geotechnical (soil) investigation survey (Kosi river basin), rainfall, gauge and discharge, cross-section of embankment etc.; (c) Basin Information Module provides information related to river cross section, river section (gross/original to survey data) etc.; (d) Store Information Module facilitates with information related to availability of materials at mechanical store, flood and site stores; (e) Analysis, Planning

and Design Module helps in the planning of flood protection, design template for planning of the flood protection and scheme preparation, design guidelines, etc.; (f) Documentation Module provides different codes, manuals and reports. In addition to these modules, (g) Data Control Module, (h) Telephone List Module, (i) Community SMS Module, and (j) Inspection Tools (Android based inspection) have been developed for efficient, effective, reliable, fast and accountable embankment management on real time basis; and (iii) **Master module for Embankment Asset Management System** is being developed under National Hydrology Project with specified data population for the Gandak Basin.

Real Time Data Acquisition System (RTDAS) : It was established under World Bank funded project and the National Hydrology Project. This IT-enabled project shares information with stakeholders on hydro-meteorological data and stores, transmits and analyses those information. This will help in modelling work by providing real time hydro-meteorological data related to rainfall, water level and discharge through installation of 52 Automatic Rain Gauge (ARG) and 25 Automatic Water Level Gauge (AWLG) under the Bihar Kosi Basin Development Project of the World Bank. Similarly, under the National Hydrology Project, the goals are achieved through installation of 17 ARGs, 54 AWLG and 7 PANs at various locations, rivers and reservoirs in the state. Data are recorded and collected through data logger, sent to receiving station through INSAT/ VSAT/ GSM and then analysed for modelling.

Mathematical Modelling Centre (MMC) : It has been established in 2018 as a Centre of Excellence with the purpose of research and development on water resources. The objectives of this Centre are to develop inhouse capacity to carry out independent mathematical modelling for the management of floods and sediment in the state, update existing models and develop regional network model for rivers of North Bihar with the Ganga River reach. The Centre has developed regional network model which begins from Buxar and extends to Kahalgon for Ganga, including Ghaghra, Gandak, Bagmati, Kosi and Mahananda.

Distribution of Gratuitous Relief (GR) and Tatkal Sahayata : It is a post-disaster relief programme for speedy and transparent transfer of relief money to flood / drought-affected persons through the PFMS. The data related to affected people are captured through the Aapda Sampoori Portal of NIC, right from the block to the state level. It is a DBT scheme which provides easy, convenient, fast and transparent fund transfer. During 2019-20 (as on November, 2019), a sum of Rs. 1547.09 crore has been transferred through DBT to 257.91 lakh families (Rs. 6000 per family)

in phase-I and 6.23 lakh families have got Rs. 373.92 crore in phase-II under GR. In addition to this, a total of 9.01 lakh families have got relief of Rs. 270.37 crore under the Tatkhal Sahayata Scheme at the rate of Rs. 3000 per family.

14.6 Promotion of Economic Development

E-governance is an ICT platform to connect the citizens and businesses with other arms of the government and help them interact in a better way to improve the economy as a whole. The State Government has implemented many e-governance programme to provides transparent bidding and public procurement, monitoring and evaluation of physical infrastructure projects, economic development programmes and ease of doing business, etc.

Infrastructure

Road : The State Government has taken several IT projects to develop and maintain the road network to cater to the smooth transportation in the state. The Rural Works and Road Construction Departments have initiated online **Contractor Registration System**, where in contractors can get registered in their respective class and payment for registration can be done online. After approval from the competent authority, applicants can download their registration certificate online. It was started in 2016 and a total of 620 contractors have been registered with payment Rs. 5.8 crore. The State Government has implemented **Road Maintenance Public Grievance Redressal System and Road Ambulance** equipped with GPS for better and speedy road maintenance by monitoring and online-tracking. Road inventory is being developed through GIS mapping. A toll-free (18003456233) and WhatsApp no (9470001346) have been allotted for the maintenance of road in the state. During April 2017 to September 2019, a total of 4375 grievances were redressed out of 4890 grievances reported. In addition, **Online Management, Monitoring and Accounting System** (OMMAS) has been developed for monitoring of schemes related to Pradhan Mantri Gram Sadak Yojana (PMGSY). OMMAS facilitates the operational requirement of planning, scheduling, monitoring, tracking and execution of the PMGSY and comprises master data relating to — rural road plan, proposal, tendering, execution, quality monitoring, receipt and payments and maintenance module. A citizen can track day-to-day progress report of schemes. **State MIS** is a web-based online system which facilitates the operational requirement of planning, scheduling, monitoring, tracking and execution of the schemes. The main objective of the Rural Works Department is to construct and maintain the rural roads falling in the category of Other District Roads (ODR) and Village Roads (VR). A citizen can track the day-to-day progress report of the scheme and actual beneficiaries can participate actively in the programme.

Energy : The Department of energy and its PSU have implemented many IT enabled projects to speed up the completion of energy sector infrastructure projects and business in the state. **E-office** minimizes the file processing time that increases transparency of the energy department and its PSUs through online tracking of files with a paperless office. **Project Monitoring Information System** helps to monitor different infrastructure projects such as construction, repair and maintenance of grid sub-stations, construction and re-conducting of transmission lines. The status of the project is updated by the concerned field engineers on a weekly basis through the mobile app for monitoring the progress of projects to meet the timelines. **Online Tracking System** facilitates time-bound processing of applications submitted by agencies for approval of projects, amendments, time extensions and release of payments. **R-APDRP** (Restructured Accelerated Power Development and Reforms Programme) scheme was implemented in 67 towns (35 towns under South Bihar Power Distribution Company Limited and 32 towns under North Bihar Power Distribution Company Limited). The objective of the programme is to reduce AT&C losses in project areas. Under this project, Data Centre and Disaster Recovery Centre were set up to provide various services like new connection, disconnection and dismantling, metering, billing, collection, energy accounting, web portal, asset management, maintenance management, meter data management, management information system, GIS-based consumer indexing and asset mapping, etc. This system provides various services to around 18 lakh consumers. Another billing automation system was implemented under State Plan to cater to the needs of remaining consumers. It encourages digital payments, facilitates rural consumers in energy bill payments at their doorstep and easy process to register and timely redressal of consumer complaints. Apart from these initiatives, three additional IT initiatives have been taken in the energy sector. These are: (i) **Enterprise Resource Planning (ERP)** project was initiated in 2018 and will go live very soon. The purpose of ERP implementation is to improve overall efficiency of the system through integration of five major sub-systems of the transmission utility like Plant Maintenance, Material Management, Project System, Financial and Control and Human Capital Management, Employee/Manager Self Service, Document Management System and Fiori (Mobility Solution) modules; (ii) **Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST)** project was initiated in 2018, which will go live in March 2020 with objective to facilitate comprehensive accounting and settlement system that streamlines trade and exchange of power between entities across different regions. This project also aims to facilitate application of licenses to eligible Open Access Consumers; (iii) **Grid Inspection Module** was initiated in 2019 and it will go live very soon. The purpose of Grid Inspection Module is to process reports of Grid-Inspections by BSPTCL management for improving Grid health.

SEITRA (Smart Energy Infrastructure Revenue Administration) : It is a web-based energy billing application which has been successfully implemented in the North and South Bihar Power Distribution Companies (NBPDC and SBPDCL) in all 38 districts with 16 Circles, 68 Divisions, 212 sub-divisions and 794 sections. It caters to the need of 1.41 crore rural consumers. Further, Mobile Apps based survey has been conducted for 36.04 lakh APL families and 19.36 lakh families have got connections till date. Under SEITRA, the Energy Spot Billing Mobile App has been developed for billing at the doorstep of rural consumers with objective of 100 percent billing and is stable to support the users. To promote digital payment, E- Wallet Mobile Apps is developed and door step collection of energy bill from 4.42 crore consumers who accrued Rs. 2505.46 crore till September 2019. It provides an online receipt and a SMS against a payment. There is no need to stand in a queue for bill payment at the counter. Pre-paid SMART meters have also been initiated as a pilot for 5000 consumers.

Ease of Rules and Acts

Bihar Industrial Investment Promotion Policy 2016 : An online single-window clearance system has been developed to provide speedy, transparent and accountable processing of any investment application for approval / clearance. The State Government has set up a call centre to address queries and grievances of the investors. During April, 2017 to September, 2019, a total of 17,312 calls have been received and queries resolved, 5984 calls sent to DICs and 136 online grievances readdressed through the Udyog Samvad Portal. During the same period a total of Rs. 58.41 crore has been given as incentive to 131 entrepreneurs and 275 entrepreneurs have been given financial clearance out of 918 applied.

Bihar Start-up Policy 2017 : It has been functioning since 2017 for promotion of investment and employment in the state. This policy targets to promote new innovative ideas with financial support. During the last two and a half years (April 2017 to September 2019), 70 start-ups have come up out of 9672 applications, 60 start-ups have got their first installment of Rs. 1.55 crore and 37 have received their second installment of Rs. 2.00 crore. In addition to this policy, **Mukhyamantri SC and ST Entrepreneurship Scheme** has been launched in 2018, with an objective to promote SC and ST communities to invest in the state. Under this scheme, out of 44,540 applications, 4868 have been selected and 3658 applicants got financial approval, 3641 got first installment, 137 got second installment and 11 start-ups got their third installment. A sum of Rs. 93.76 crore was provided to these start-ups in instalments during the same period. The progress of start-ups and Mukhyamantri SC and ST Entrepreneurship Scheme is given in Table 14.4.

Table 14.4 : Status of Start-up and Mukhyamantri SC and ST Entrepreneurship Scheme in Bihar (2017-20)

Details	2017-18	2018-19	2019-20*	Total
Bihar Start-Up Policy				
Online Application	4556	2756	2360	9672
Related application for incubation	867	557	3537	4961
Number of authenticated start-up	41	29	—	70
1st installment (Rs. crore) (start-up number)	0.71 (29)	0.72 (27)	0.13 (04)	1.55 (60)
2nd installment (Rs. crore) (start-up number)	—	1.70 (33)	0.30 (04)	2.00 (37)
Chief Minister SC and ST Entrepreneurship Scheme				
Online Application	—	33655	10885	44540
Selected Application	—	4545	323	4868
Approved for Financial Assistance	—	2616	1042	3658
Applicants received 1st installment	—	2337	1304	3641
Applicants received 2nd installment	—	68	69	137
Applicants received 3rd installment	—	—	11	11
Total Disbursed Amount (in Rs. crore)	—	58.89	34.87	93.76

Note : *-denotes data upto September, 2019

Source : Department of Industries, GoB;

BIADA : Bihar Industrial Area Development Authority is a nodal agency to provide planned industrial area, promotion of industries and matters related thereto. BIADA has been providing IT enabled services for lease, sublease, change in products, land transfer, mortgage consent, change in company and change in bylaws via My BIADA App. **E-Office** has been implemented for file movements. **Online Service Portal** has been providing land allotment and other entrepreneur-related services since 2017. Till date, 167 plots of land pieces have been allotted to 447 applicants. **GIS mapping** is being implemented since 2017, with an objective to capture, store, edit, analyse, manage and maintain spatial or geographical information related to industrial area unit details, infrastructure (road, drainage, electricity), report, etc.

Bihar Integrated Mines and Mineral Management System : BIMMS has been set up in 2017, with the objective of achieving integrated inter-departmental access to information related to mining in the state. It provides IT platform to facilitate the Department of Mines and Geology related activities like challan generation, monitoring of activities relating to mining and to put a check on various other activities. This application helps in reaching different decision points and monitoring of field, level activities. The beneficiaries involved in this application are lessee, stockists, dealers and crushers (Table 14.5). A Project Management Unit (PMU) has been established to develop and maintain the BIMMS. This IT solution increases efficiency in

monitoring and maintaining, transparency and competitiveness. In addition to this, district mineral survey report is being prepared for all the districts through GIS mapping. The State Government has developed Geo-Mapping Application to improve revenue collection from brick kilns. E-lock and e-bidding have been implemented to facilitate transparency and accountability in the area of mining.

Table 14.5 : Status of BIMMS Project in Bihar (2017-20)

Beneficiary Type		2017-18	2018-19	2019-20
Lessee (Sand)	Beneficiary	387	536	389
	Transaction (in lakh)	11.42	53.84	24.42
	Excavation (in lakh MT)	108.40	560.74	315.38
Lessee (Stone)	Beneficiary	31	32	33
	Transaction (in lakh)	1.13	5.38	2.28
	Excavation (in lakh MT)	18.14	107.42	50.15
Stockist	Beneficiary	-	384	329
	Transaction (in lakh)	-	2.47	2.74
	Excavation (in lakh MT)	-	37.02	45.89
Crusher	Beneficiary	-	77	71
	Transaction (in lakh)	-	0.24	0.16
	Excavation (in lakh MT)	-	4.20	2.85

Source : Department of Mines and Geology, GoB

Integrated Excise Management System (IESM) : This is being executed since 2016 to connect all Excise Offices, Sugar Mills, Distilleries and the Headquarters through IT-enabled 10 modules. The Department of Prohibition, Excise and Registration has taken an initiative for Chemical Lab Module and Court Case Management Module.

Online Services under different Labour Laws : The Department of Labour Resources provides 31 hassle free online services under 9 labour laws to the citizens, employers, proprietors of factories/ establishment and contractors. These labour laws are — (i) Trade Union Act, 1926, (ii) Contract Labour Act, 1970, (iii) Motor Transport Workers Act, 1961, (iv) Bihar Shop and Establishment Act, 1953, (v) Building and Other Construction Workers Act, 1966, (vi) Beedi and Cigar Workers Act, 1966, (vii) Factories Act, 1948, (viii) Boiler Act, 1923 and (ix) Inter-State Migrant Act, 1979. The fees for all the services are deposited through OGRAS and timeline to deliver these services is 15 days from the date of online registration without physical interaction. The physical and financial progresses of these e-governance programmes are given in Table 14.6.

Table 14.6 : Overview of Online Services under Different Labour Laws (2017-20)

Year	Trade Union Act, 1926	Contract Labour Act, 1970	Motor Transport Workers Act, 1961	The Bihar Shops and Establishment Act, 1953	The Building and Other Construction Workers Act, 1996	Beedi and Cigar Workers Act, 1966	Factories Act, 1948	Boiler Act, 1923	Inter-State Migrant Act, 1979	Total
Application Received (in No.)										
2017-18	15	5881	1211	17053	47	9	670	425	11	25322
2018-19	16	6439	1388	13746	57	6	743	402	7	22804
2019-20	16	3234	631	7956	107	9	446	269	13	12681
Total	47	15554	3230	38755	211	24	1859	1096	31	60807
Service Delivered (in No.)										
2017-18	0	4762	914	14485	35	6	450	423	2	21077
2018-19	0	5408	866	11021	40	5	542	365	4	18251
2019-20	0	2546	342	6059	81	6	312	254	8	9608
Total	0	12716	2122	31565	156	17	1304	1042	14	48936
Fee Collected (in Rs. lakh)										
2017-18	0.01	8.62	0.33	2.67	0.63	0.01	76.10	116.99	0.02	205.36
2018-19	0.01	8.80	0.39	2.59	0.72	0.00	72.37	100.46	0.02	185.35
2019-20	0.01	5.36	0.17	1.71	0.98	0.00	56.10	80.69	0.03	145.05
Total	0.03	22.78	0.89	6.97	2.32	0.01	204.57	298.14	0.07	535.77

Source : Department of Labour Resources, GoB

Registration and Upgradation of Land Records : For land registration and payment of registration fee and stamp duty, the State Government has provided IT-enabled platform for easy, transparent, speedy and digital payment facility for the beneficiaries. The manual registers of 43,758 Institutions and 8153 Firms have been digitised for the period of 2008-09 to 2016-17. Since February 2016, an online facility has been initiated for the common masses for registration of land. A model deed of 30 types of documents is available on the website in three languages – English, Hindi and Urdu and a portal has been provided to upload data related to respective deed and get document prepared by themselves. A total of 124 registration offices have been connected through the online data centre. The State Government is accepting all fees through e-receipts portal of O-GRAS. These e-services provide leakage-free registration and authentication of the real owner of the land. A total of 18.93 lakh people got benefitted, involving Rs. 3072 crore during 2016-17, 21.9 lakh people paid Rs. 3597 crore in 2017-18 and 23.05 lakh people spent Rs. 4167 crore during 2018-19 for their online registration fees.

The Department of Land Reforms has been digitizing land records of the state through Digital India Land Record Modernisation Programme (DILRMP), with an objective to undertake total survey of land, deed publication and rent fixation of those lands measured through cadastral survey. Under this programme, five major works are being undertaken :

- (i) **Data Centre cum Modern Archive** is being established in all the 534 circles of the state, out of which 426 circles are ready with their own buildings and modern equipments have been provided by BELTRON to 145 Circle Offices. The rest of the circle buildings will be completed very soon. The Centre will provide land record access to the landlords after digitisation of resurvey maps and deeds prepared through the modern technology. A training institution for survey (revenue) has been set up in Patna to provide technical training to the revenue personnel of the state.
- (ii) **Digitisation of Survey Map** facilitates supply of cadastral maps for all 38 districts, revisional maps for 28 districts and consolidation map for 18 districts. In addition, a platter each has been established at the Bihar Foundation, Mumbai and at the Bihar Bhavan, New Delhi, which are functional.
- (iii) **Data entry / re-entry / data convergence** has been initiated for supply of deed to the raiyats / farmers through facilitation centres or via website throughout Bihar.
- (iv) **Online Mutation** is being facilitated with transparent, speedy, and corruption-free services to the citizens of the state. It provides online mutation, land-ownership certification and rent payment. and
- (v) **Re-survey** : Arial photography of all the 38 districts have been completed. Maps are being provided in 13 districts and will be published for the rest of 25 districts in near future.

Skill Development and Employment Promotion

Skill Development : All the facilities are provided through online portal, including registration, issuance of admit cards, results and provisional certificates of Industrial Training Institutes (ITI), regulated under the State Council of Vocational Training and National Council of Vocational

Training. In order to promote vocational degrees and diplomas, the Department of Science and Technology provides online information right from admission to the final result. There are in all 38 Engineering colleges, one in each district, and 44 Polytechnic Institutes running under Seven Resolves, having the capacity of 9613 and 11,232 seats respectively. The students pursuing degree courses are being provided an amount of Rs. 4984 and students pursuing diploma courses are getting Rs. 3542 each and per month during the course period. In addition, 176 degree and 184 diploma holders are getting Rs. 15,000 and Rs. 10,000, respectively, per month for one year apprenticeship training programme run by each institution. Apart from these initiatives, many skill development programmes are running under Digital India, Kaushal Vikas Mission, NEILIT, C-DAC, etc. **Bihar Student Credit Card (BSCC)** scheme is a fully online scheme under Seven Resolves for students residing in Bihar who have passed class 12th (10th for Polytechnic) and are enrolled for higher studies in selected streams as per programme guidelines in a recognized institute. Students are entitled for an education loan up to Rs. 4 lakh with interest rate of one percent for female, transgender and disabled and 4 percent for others upon satisfactory loan appraisal. BSCC is being issued with the objective to make it easily available, with minimum manual intervention, avoiding unnecessary delays and effective monitoring and tracking of the scheme progress.

Employment Promotion: Employment Exchanges have been equipped with IT-enabled platform which facilitates unemployed youths through registration by providing them information regarding employment opportunities, career counselling, job fare, etc. Further, **National Career Services Portal** facilitates job seekers through registration and till date, 26.80 lakh job seeker have been registered. **Mukhyamantri Nishchaya Swayam Sahayata Bhatta Yojana (MNSSBY)** has been introduced in 2016 for unemployed 12th pass youths in the age group of 20-25 years who have not undergone for any higher education. Under this yojana, a sum of Rs. 320 crore has been given to the 7.16 lakh unemployed youths through Aadhar authentication. Furthermore, the State Government has been providing incentive for preparation of Civil Services to Preliminary Test qualified candidates from SC and ST communities. **Bihar Public Service Commission (BPSC)** provides a transparent and easily accessible online facility for the employment under state civil services. Apart from the examination system, right from the advertisement to result, attendance surveillance is being done online.

Labour Welfare : Bihar Building and Other Construction Workers Welfare Scheme provides online window for registration of the related workers and their dependents. It facilitates the information of eligibility, benefits, etc. Under the state scheme of financial assistance for marriage upto 2 daughters, 351 daughters of the workers got benefitted involving a sum of Rs. 175.50 lakh at the rate of Rs. 50,000 per girl in 2018-19. Under maternity benefit scheme, 46 newly mothers got benefitted with Rs. 10,000 each in 2018-19. The State Government has been providing pension to the registered workers and 11 workers have got a pension of Rs. 1000 per month during same year. Under annual medical assistance scheme, 2,57,345 registered workers have been benefitted with Rs. 3000 annually disbursed via PFMS during 2018-19. Departments of 59 workers have been benefitted with an amount of Rs. 1.10 crore under the state scheme of compensation after death in 2018-19. Further, 37 workers got financial help for funeral, involving the amount of Rs. 37,000. Till September 2019, 2.41 lakh workers have been registered on the portal.

Support to Enhance Productivity and Investment

Agriculture and Allied Sectors : National e-Governance Project in Agriculture (**NeGP-A**) has been started since 2016, with the objective of strengthening service delivery through DBT in agriculture sector to eliminate mediator and to promote transparency, efficiency and speedup service delivery to the farmers. A sum of Rs. 4.47 crore has been disbursed in 2017-18, Rs. 3.68 crore in 2018-19 and Rs. 2.51 crore in 2019-20 till September 2019 through DBT. The State Government has been providing **diesel subsidy** to the drought affected farmers for protecting their crops at the rate of Rs. 50 per litre diesel and Rs. 500 is being provided for one acre of land. A sum of Rs. 1000 is being provided for 2 times irrigation of jute, Rs. 2500 for 5 times irrigation of paddy and Rs. 1500 for 3 times irrigation of maize and other rabi crops for one acre area. The diesel subsidy is provided through online transfer to the registered farmers and 13.86 lakh farmers got benefitted under the kharif season, while 2.1 lakh farmers under rabi season till September, 2019. In addition to this, the State Government has also provided an input subsidy to 13.91 lakh farmers from 280 blocks of 25 drought declared districts. Further, **Pradhan Mantri Samman Nidhi Yojana** is a central sector scheme, which has launched in December 2018 with an objective to enhance farmers' income. Under this scheme, farmers are getting Rs. 6000 per annum in three

equal installments through DBT and 43.95 lakh farmers have been benefitted out of 62.56 lakh applications. E-Kisan Bhavan has been established in all 534 blocks and 38 district headquarters for facilitation of schemes and other agriculture related information. **Procurement Scheme** is functional since 2015, which provides a minimum support price to the farmers to ensure a minimum rate for their crops and payment is being made through online in the farmer's bank account. During 2018-19, a total of 2.10 lakh MT paddy has been procured by paying Rs. 2478.68 crore to 2.10 lakh farmers and Rs. 3.04 crore to 3128 wheat farmers for 17,504 MT wheat. The Department of Cooperatives has developed ePAC mobile based solution for paddy procurement. The Directorate of Economics and Statistics provides financial support for **crop cutting experiment** to the farmer through DBT and Rs. 4.28 crore have been given to 6.10 lakh farmers. **Subsidies for establishment of layer poultry farm** (1000, 5000 and 10000 capacity), Goat Farm (20+1, 40+2 and 100+5 capacity) and for building the infrastructure of Broiler Farm (3000 capacity) have been provided to 978 beneficiaries in 2017-18 and 937 in 2018-19, involving a subsidy amount of Rs. 412.00 lakh and Rs. 12.06 lakh respectively through online payments. **JEEViKA** has developed many mobile Apps on livestock. The App captures the process at Poultry Mother Unit in terms of receiving chicks, vaccination and distribution to the members, households and monitoring of production. PashuSakhi is an app used at producer's group level to capture details of goat herd, goat mortality, etc. at member level. A mobile App has been developed to capture the details of goat beneficiaries with snap of goat distributed at the goat haat by JEEViKA. Neera App was developed on the web and mobile app platform to capture details of tappers including daily neera production and sales. **Bihar Shatabdi Niji Nal kup Yojana** is a DBT scheme with an objective to provide subsidy for tubewells and motor pumps. Till date, a sum of Rs. 40.04 crore has been disbursed through DBT since November 2018 under this scheme.

Industries : The State Government has started an e-governance programme to **support power-looms in Gaya** for reimbursement of procurement fee of CTI/CTO since January 2019 and Rs. 5.18 lakh has been provided to 75 beneficiaries till September 2019. **Mukhyamantri Ganna Vikas Yojana** has been started since 2016 for promotion of sugar industry as well as farmers producing sugarcane. A sum of Rs. 7.60 crore has been disbursed among 8734 farmers during 2018-19 compared to Rs. 11.42 crore to 17,507 farmers a year before. **JEEViKA** has developed a

value chain application which captures process of aggregation and value addition to the goods through community procurement and producer company.

Quality improvement through automation and digital payment of COMFED : It helps to improve the quality of milk by providing automated testing machine through the investment of Rs. 73.88 crore. In addition to this, it brings transparency in milk billing and digital payment to dairy cooperatives / farmers through SAP ERP system. It boosts the trust of consumers of milk products under the ‘Sudha’ brand. A total of 4.5 lakh farmers, 7224 dairy cooperatives and 8 milk unions have been benefitted through this project. The details of the project is given in Table 14.7.

Table 14.7 : Number of Beneficiaries and Investment for Quality Improvement of Milk Products (2017-20)

Details	2017-18		2018-19		2019-20 (upto September, 2019)	
	Beneficiary	Investment (Rs crore)	Beneficiary	Investment (Rs crore)	Beneficiary	Investment (Rs crore)
AMCU Installation	3777 DCS	25.88	6744 DCS	55.44	7224 DCS	60.00
Milko Screen Installation	—	—	8 Milk Unions	1.29	8 Milk Unions	1.64
Milko Scanner Installation	5 Milk Unions	2.61	8 Milk Unions and Head Office	5.26	8 Milk Unions and Head Office	5.26
SAP ERP Installation and Configuration	Work in progress	5.50	Configuration work award	6.98	At 3 plants of Patna Dairy Project, 1 at COMFED Head Office, 1 at Milk Union, 2700 at DCS and to 1.73 lakh members	6.98

Source : COMFED, Bihar

Forest Management Information System (FMIS) : Economic development has its impact on environment. Many cities of the state are among the most polluted cities in the country. Therefore, the State Government has started FMIS since 2012 to promote green cover with the objective of increasing the outreach of forest officers effectively through IT-enabled applications. A sum of Rs 1.4 crore has been spent during 2017-18 to 2019-20 (till September 2019) and this has connected 2840 different types of stakeholders through 1808 transactions under this system. Many IT-enabled programmes have been executed by the Department of Environment, Forest and Climate Change, as given in Table 14.8 below.

Table 14.8 : E-governance Programmes for Green Cover (2019)

Application	Benefit
e – Nursery	This App is used for effective monitoring by concerned field officers and headquarter level officers through uploading inspection reports with geo-tagged photographs of Nurseries.
e – Plantation	This app is used for effective monitoring by concerned field officers and headquarters level officers through uploading of inspection reports with geo-tagged photographs of Plantations.
e – Forestry	This is used by citizen of Bihar and farmers for applying online in government forestry schemes against which the Department distributes plants free of cost as per basic criteria. Other facilities, like purchase of plants from departmental nursery etc. can be availed. Online and offline payment modes are available.
e – Forest Mandi	It is being developed as a knowledge and information sharing to facilitate sale/purchase, quality improvement, service and technology sharing platform for forest produce. This is used for quality improvement and to reduce the nexus of middlemen, thereby purchaser and buyer can interact directly with each other.
Visitor Pass System	This web application is used to create passes for visitors who come in to make an appointment with officials/personnel of the Department at PCCF Office, Aranya Bhawan.
e – JFM (Joint Forest Management)	With help of e-JFM app, field data can be inspected and captured. Hand Pump, Solar Light etc. and other entry point activities can be mapped.
e – Wildlife	This App helps to monitor and take action about wildlife incidents, and to calculate how many and type of animals stay in a particular forest with help of animal sign and sighting.
e – Forest Offence	It is beneficial for proper and fast reporting. Easy to monitor and take action regarding illegal felling, illegal mining, land encroachment & fire outbreak incidents.
e – Lekha	In this application, entry of allotment and expenditure of different schemes such as Plan, Non-Plan, CAMPA, SFDA, and Durgawati is done. Entry of monthly account submission is also done through e-Lekha.
HRMS	It is used to preserve employees' most useful service information currently available in their service book records into electronic form (e-Service Book).
e – Leave	This app is used by the department officials to apply for leave as CL, RH, CL+RH, outstation leave. Message facility is also available.
e – RDF (Scheme Formulation System)	This application is used to formulate scheme such as RDF, SMC and generate its detailed report.
e – Park Ticketing System	This application is being developed to facilitate park ticketing for visitors to generate QR code-based tickets and online payment integration.
e – Photo	This application is to facilitate capturing of random event photos by forest officials.
e – Hariyali	This application is to facilitate capturing of greening works done by citizens and public.
e – Report	This application is to facilitate viewing of all forest reports in one place for forest officials.
SPARROW	Implementation of SPARROW (e—PAR) for writing the APAR of IFS Officers.

Source : Department of Environment, Forest and Climate Change, GoB



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