State Of India's Livelihoods

REPORT 2025

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State of India's Livelihoods
Report 2025

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List of Abbreviations

ACMA	Automotive Component Manufacturers Association
ADBI	Asian Development Bank Institute
ADeX	Agricultural Data Exchange
AF	Adaptation Fund
AFOLU	Agriculture, Forestry, Other land uses, and Fisheries
AI	Artificial Intelligence
AIF	Agriculture Infrastructure Fund
AISHE	All-India Survey on Higher Education
ALEAP	Association of Lady Entrepreneurs of India
APMC	Agricultural Produce Market Committee
APY	Atal Pension Yojana
ARHC	Affordable Rental Housing Complexes
ASAP	Adaptation Programme for Small Scale Agriculture
ASHA	Accredited Social Health Activist
ASI	Annual Survey of Industry
ASUSE	Annual Survey of Unincorporated Sector Enterprises
ATMA	Agriculture Technology Management Agency
AWCCs	Anganwadi-cum-Crèche
BNPL	Buy Now Pay Later
BOCW	Building and Other Construction Workers
CAG	Comptroller and Auditor General
CAGR	Compound Annual Growth Rate
CARE	Cooperative for Assistance and Relief Everywhere
CCL	Central Coalfields Limited
CDM	Clean Development Mechanism
CEEW	Council on Energy, Environment and Water
CeM	Government e-Marketplace
CERT-In	Indian Computer Emergency Response Team
CGTMSE	Credit Guarantee Fund Trust for Micro and Small Enterprises
CH4	Methane
CIDA	Canadian International Development Agency
CII	Confederation of Indian Industry
CII	Confederation of Indian Industry
CMIE	Centre for Monitoring Indian Economy Pvt. Ltd.
CoEs	Centres of Excellence
COP	Conference of Parties
CoWIN	Covid Vaccine Intelligence Network
CPGRAMS	Centralized Public Grievance Redress and Monitoring System

CPI	Consumer Price Index
CPI	Climate Policy Initiative
CRPs	Community Resource Persons
CSOs	Civil Society Organisations
CSR	Corporate Social Responsibility
CSR	Corporate Social Responsibility
DAY-NULM	Deendayal Antyodaya Yojana–National Urban Livelihoods Mission
DBT	Direct Benefit Transfer
DDU-GKY	Deen Dayal Upadhyaya Grameen Kaushalya Yojana
DeFi	Decentralised finance
DF&PD	Department of Food & Public Distribution
DGFT	Directorate General of Foreign Trade
DILRMP 2.0	Digital India Land Records Modernization Programme
DPIIT	Department for Promotion of Industry and Internal Trade
EBP	Ethanol Blending Programme
ECCE	Embedding Early Childhood Care and Education
ECEH	Electronics and Communication Engineering
ECLGS	Emergency Credit Line Guarantee Scheme
e-NAM	electronic National Agriculture Market
EPFO	Employees' Provident Fund Organisation
ESG	Environmental, Social, and Governance
ESIC	Employee State Insurance Scheme
ETBFSI	Economic Times Banking, Financial Services and Insurance
EV	Electronic Vehicles
FAME	Faster Adoption and Manufacturing of Electric Vehicles
FAO	Food and Agriculture Organization
FFS	Farmer Field School
FICCI	Federation of Indian Chambers of Commerce & Industry
FICCI	Federation of Indian Chambers of Commerce and Industry
FISME	Federation of Indian Micro and Small and Medium Enterprises
FLFP	Female Labour Force Participation
FPC	Farmer Producer Company
FPO	Farmer Producer Organisation
FRP	Fair and Remunerative Price
FRUITS	Farmer Registration and Unified Beneficiary Information System
FY	Financial Year
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GeM	Government e-Marketplace
GER	Gross Enrolment Ratio
GHG	Green House Gas
GoI	Government of India
GRC	Governance, Risk, and Compliance

GSK	GlaxoSmithKline
GST	Goods and Services Tax
GSTN	Goods and Services Tax Network
GVA	Gross Value Added
GW	Giga Watts
HPEC	High-Powered Expert Committee
HR	Human Resource
HWE	Hired Workers Enterprises
IBEF	Indian Brand Equity Foundation
ICAR	Indian Council of Agricultural Research
ICDS	Integrated Child Development Services
ICRISAT	International Crops Research Institute for the Semi-arid Tropics
IDEAL	Institute of Development Alternatives
IESA	India Electronics and Semiconductor Association
IFAD	International Fund for Agricultural Development
IFS	Integrated Farming System
IHLEG	Independent High-Level Expert Group on Climate Finance
IICA	Indian Institute of Corporate Affairs
ILO	International Labour Organization
IMD	India Meteorological Department
IMD	India Meteorological Department
IMF	International Monetary Fund
IMSS	Social-Security Institute
IoT	Internet of Things
IPCC	International Panel on Climate Change
IRDAI	Insurance Regulatory and Development Authority of India's
IRENA	International Renewable Energy Agency
ISRO	Indian Space Research Organisation
IT	Information Technology
ITU	International Telecommunication Union
JAM	Jan Dhan accounts, Aadhaar, and Mobile
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KCCS	Kisan Credit Cards
KLEMS	Capital, Labour, Energy, Materials, and Services
KYC	Know Your Customer
LDCF	Least Developed Countries Fund
LFP	Labour Force Participation
LFPR	Labour Force Participation Rate
LPG	Liberalisation, Privatisation, and Globalisation
MAVIM	Mahila Arthik Vikas Mahamandal
MBA	Maternity Benefit Act
MCA	Ministry of Corporate Affairs
MDBs	Multilateral Development Banks
MeitY	Ministry of Electronics and Information Technology

MENA	Middle East and North Africa
MEP	Minimum Export Price
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MIES	Ministry of Economic and Social Inclusion
MIP	Minimum Import Prices
MKSS	Mazdoor Kisan Shakti Sangathan
MMF	Man-made Fibres
MoHUA	Ministry of Housing and Urban Affairs
MOSPI	Ministry of Statistics and Programme Implementation
MoU	Memorandum of Understanding
MPI	Multidimensional Poverty Index
MSE-CDP	Micro and Small Enterprises Cluster Development Programme
MSMEs	Micro Small & Medium Enterprises
MSP	Minimum Support Price
MUDRA	Micro Units Development & Refinance Agency Limited
N2O	Nitrous Oxide
NABARD	National Bank for Agriculture and Rural Development
NAFED	National Agricultural Cooperative Marketing Federation of India
NALSA	National Legal Services Authority
NAPCC	National Action Plan on Climate Change
NAPCC	National Action Plan on Climate Change
NASSCOM	National Association of Software and Service Companies
DSCI	Data Security Council of India
NCCF	National Cooperative Consumers' Federation of India Ltd
NCEL	National Cooperative Exports Limited
NCEUS	National Commission for Enterprises in the Unorganised Sector
NCQG	New Collective Quantified Goal
NDC	Nationally Determined Contributions
NEET	Not in Education, Employment and Training
NeFMS	National Electronic Fund Management System
NFSM–OS&OP	National Food Security Mission on Oilseeds and Oil Palm
NGO	Non-governmental Organisation
NHM	National Health Mission
NICRA	National Innovations in Climate Resilient Agriculture
NITI Aayog	National Institution for Transforming India Aayog
NMEO (OP)	National Mission on Edible Oils (Oil Palm)
NMSA	National Mission for Sustainable Agriculture
NMSKCC	National Mission on Strategic Knowledge for Climate Change
NPCI	National Payments Corporations of India
NPK	Nitrogen, Phosphorus, and Potassium
NRDC	Natural Resources Defense Council
CEEW	Council on Energy, Environment and Water
NRLM	National Rural Livelihoods Mission

NSDC	National Skill Development Corporation
NSO	National Statistics Office
NSQF	National Skills Qualification Framework (NSQF
NSSO	National Sample Survey Office
NTFP	Non-Timber Forest Product
NTTM	National Technical Textiles Mission
NULM	National Urban Livelihoods Mission
NXP	Next eXperience
OAE	Own Account Establishments
ODOP	One District One Product
OECD	Organisation for Economic Co-operation and Development
OMCs	Oil Marketing Companies
ONDC	Open Network for Digital Commerce
ONORC	One Nation One Ration Card
PDS	Public Distribution System
PIB	Press Information Bureau
PLFS	Periodic Labour Force Survey
PLI	Production Linked Incentive
PM CARES	Prime Minister's Citizen Assistance and Relief in Emergency Situations
SVANidhi	Street Vendor's AtmaNirbhar Nidhi
PMEGP	Prime Minister's Employment Generation Programme
PMFBY	Pradhan Mantri Fasal Bima Yojana
PMFME	Pradhan Mantri Formalisation of Micro Food Processing Enterprises
PMIS	Prime Minister's Internship Scheme
PM-KISAN	Pradhan Mantri Kisan Samman Nidhi
PMKSY	Pradhan Mantri Kisan Sampada Yojana
PMKSY-WSD	Pradhan Mantri Krishi Sinchayee Yojana-Watershed Development Program
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
PM-MITRA	Pradhan Mantri Mega Integrated Textile Regions and Apparel Parks
PM-WANI	Prime Minister's Wi-Fi Access Network Interface
PoCRA	Project on Climate Resilient Agriculture
PoSH	Prevention of Sexual Harassment
PP	Public-Private Partnership
PSE	Producer Support Estimate
PsSP	Point of Sales Persons
PVTGs	Particularly Vulnerable Tribal Groups
QR	Quantitative Restrictions
R&D	Research and development
RBI	Reserve Bank of India
RBIH	Reserve Bank Innovation Hub
RECSS	Rural Economic Conditions and Sentiments Survey
SAP	State Advised Price
SAPCC	State Action Plans on Climate Change
SC/ST	Scheduled Caste/ Scheduled Tribe

SCCF	Special Climate Change Fund
SCGJ	Skill Council for Green Jobs
SCM	Smart Cities Mission
SDGs	Sustainable Development Goals
SEBI	Securities and Exchange Board of India
SHGs	Self-help Groups
SIA	Social Impact Assessments
SIDBI	Small Industries Development Bank of India
SME	Small and Medium Enterprises
SMP	Statutory Minimum Price
SSC	Sector Skill Councils
STEM	Science, Technology, Engineering, and Mathematics)
SWAYAM	Study Webs of Active-Learning for Young Aspiring Minds
TAT	Turnaround time
TCS	Tata Consultancy Services
TK	Traditional Knowledge
TSIIC	Telangana State Industrial Infrastructure Corporation
UDISE+	Unified District Information System for Education Plus
UK	United Kingdom
ULBs	Urban Local Bodies
ULI	Unified Lending Interface
UN	United Nations
UNCED	The United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNGPs	UN Guiding Principles on Business and Human Rights
UNICEF	United Nations Children's Fund
UPI	Unified Payments Interface
UPS	Unified Pension Scheme
US	United States
USD	United States Dollar
UX	User Experience
VCRMCs	Village Climate Resilient Agriculture Management Committees
VLSI	Very Large-Scale Integration
WASH	Water, Sanitation, and Hygiene
WASME	World Association for Small and Medium Enterprises
WCAG 2.1	Web Content Accessibility Guidelines 2.1
WEE	Women's Economic Empowerment
WiRE	Women in Renewable Energy
WOTR	Watershed Organisation Trust
YES-TECH	Yield Estimation System Based on Technology

Preface

India stands at a critical point in its development journey, trying to balance steady economic growth with the need to create decent jobs for its burgeoning population. As the world's most populous nation with about 1.45 billion people, the challenge of creating jobs for millions entering the job market each year remains enormous. The stress is evident.

A quick look at recent growth trends adds useful context to this challenge. India's real GDP grew at 6.5 percent in FY 2024-25, down from 8.2 percent growth in FY 2023-24. The construction sector led the economy with 9.4 percent growth, while financial, real estate, and professional services grew at 7.2 percent. Manufacturing recorded 5.3 percent growth.

Amid these broader growth trends, understanding the pace and quality of employment creation becomes even more crucial. Recent labour market data shows positive trends. Under the usual status approach, which captures employment over a year-long period, the unemployment rate dropped to 3.2 percent in 2023–24, compared to 6 percent in 2017–18. Female workforce participation continued to rise, though gender gaps persist, with urban female unemployment at 8.2 percent. Youth unemployment remained higher at 10.2 percent for 2023–24.

As the labour market strengthened and more people found sustainable employment, these improvements were reflected in broader gains against poverty, accelerating India's progress toward reducing deprivation and raising living standard as confirmed by recent World Bank data. As of 2025, the World Bank reports that extreme poverty in India, measured by the USD 2.15 per day threshold, declined from 16.2 percent in 2011-12 to 2.3 percent in 2022-23. This translates to about 171 million people lifted out of extreme poverty during this period. Rural poverty dropped from 18.4 percent to 2.8 percent, while urban poverty decreased from 10.7 percent to 1.1 percent over the same timeframe. At the higher international poverty benchmark of USD 3 per day, the corresponding national poverty rate stood at 5.3 percent for 2022-23, amounting to roughly 129 million people.

Agriculture continues as the backbone of India's economy and the primary source of income for millions. The sector faces serious problems like shrinking farm sizes and unpredictable weather, along with the need for better technology. The recent Situation Assessment Survey shows how smaller farms make it harder to enhance and diversify production, even though farm machinery and digital tools offer new opportunities. At the same time, the Economic Survey notes that India needs to create an average of nearly 7.85 million non-farm jobs every year until 2030, showing how important it is to develop other sectors beyond farming.

India's economy continues to grow despite what experts call the 'new normal of permanent volatility'. Ongoing wars, trade disputes, and tariff problems have disrupted global markets, testing India's ability to stay competitive in a fast-changing world economy. While the big numbers look good, the stable economic picture hides complex realities that directly affect millions of people's lives and livelihoods. Industries connected to international markets continue to suffer from global slowdowns, rural incomes remain at risk from climate problems, and job creation hasn't kept pace with the growing working-age population. Turning overall economic stability into widespread employment and income security remains

The State of India's Livelihoods (SOIL) Report, now in its 18th edition, continues to be the main document tracking trends, challenges, and new opportunities in India's livelihoods space. This year's

report focuses on growing pressure on agriculture and the need to speed up non-farm and urban livelihoods, along with the importance of building climate-resilient farming systems. The Report also looks closely at women's economic participation and the care economy, along with the changing role of Corporate Social Responsibility.

These themes align well with the vision of Viksit Bharat@2047, built on four key pillars of economic strength, social inclusivity, environmental responsibility and good governance. The Union Budget 2024-25 reflects this focus with record spending on rural development and loans for farmers and small businesses, along with strong support for MSMEs and start-ups, plus a gender budget of 8.86 percent of total spending. All these investments aim at one goal: strengthening livelihoods as the base for inclusive and sustainable growth.

Using different viewpoints and ground-level evidence, this Report brings together chapters that highlight the changing landscape of India's livelihoods. N. Srinivasan sets the economic background, showing how changes in growth, employment, finance, and inclusion create opportunities and risks across sectors.

Ramesh Arunachalam looks at policy and program responses during 2024-25, studying where large government programmes have worked, where gaps remain, and what changes are needed to build strong livelihood systems. He also looks at how digital technology is creating economic opportunities while challenges persist.

Siraj Hussain et al examines tensions between farmer and consumer interests, while Marcella D'Souza makes a case for agroecology as a way to balance productivity, ecological health, and climate adaptation. Manjula Menon focuses on climate-related risks and ways to get climate financing to address livelihood problems.

Rajesh Joseph maps India's employment structure, looking at job types and quality to identify gaps that need to be filled to make the most of India's young population.

Chetan Choithani studies rural-urban migration and informal city livelihoods, showing how millions of low-skilled migrant workers are central to India's growth but ignored in policies.

Kajol Tanaya et al looks at how India's fast-growing non-farm sectors are opening doors for women's long-term work participation. Akansha Saluja and the team from UNDP explain why affordable, quality care systems matter, not just as a social need but as a key driver of women's employment and economic growth.

Finally, Chhitiz Kumar et al traces the evolution of CSR in India, showing through real examples how it can be a useful tool for corporate investments in livelihoods that reduce poverty, create jobs, and promote inclusive growth.

Across all chapters, the authors exhibit the complexity of India's livelihood changes. These range from climate risks and financial access problems to inequality and new opportunities in farming and business, along with urban work and women's economic empowerment. Together, they highlight how rural and urban livelihoods are deeply connected with farm and non-farm work, along with formal and informal employment, while showing paths to inclusive national growth.

I sincerely thank all contributors who have made this edition valuable with their knowledge and insights, putting together well-researched and analytical chapters.

I especially thank N. Srinivasan, who took on the arduous task of editing this year's Report. He played a key role not only in shaping its structure but also in carefully reviewing the chapters, suggesting improvements, and knitting everything together as a cohesive and useful document for readers.

This year's report is supported by Knowledge Partners Rabo Foundation who have been the most steadfast in their partnership and ITC Limited who are supporting the report for the first time.

We gratefully acknowledge the financial support from the Research and Development Fund of the National Bank for Agriculture and Rural Development (NABARD). I deeply thank all partners for their support of the Report.

Finally, I extend my deepest gratitude to our CEO, Vipin Sharma, for his unwavering guidance and constant encouragement throughout this journey. I thank my team at the Livelihoods India Secretariat, comprising Chhitiz and Poorva, for their hard work in bringing authors on board and coordinating with them for timely submissions, supporting the editing process, and ensuring the Report was ready for release on time.

The 18th State of India's Livelihoods Report will be released at the Livelihoods India Summit on December 3, 2024. As we present this edition, we believe strongly that livelihoods in India must move from subsistence levels to more sustainable and scaled levels.

We hope this report will be a useful resource for policymakers, practitioners, and researchers, providing a strong knowledge base for different stakeholders. We look forward to your feedback on how to make future editions better.

Enabling Economic Empowerment for individuals and communities is the key to India's ambition of Viksit_Bharat@20247, that is economically strong, socially inclusive, environmentally responsible and globally influential.

Puja Gour
Vice President
ACCESS Development Services

Overview: Livelihoods in a Changing Economic Context

1

N Srinivasan

The Indian economy has demonstrated considerable resilience over the past year, recording real Gross Domestic Product (GDP) growth of 6.5 percent. According to the Reserve Bank of India (RBI), the macroeconomic fundamentals were robust; the proactive policy measures and sustained capital expenditure by the government supported growth in the midst of weak global signals. RBI noted in its annual report 2024–25 "*India remained the fastest growing major economy. Economic activity was supported by an improvement in consumption demand and net exports on the expenditure side, and buoyant services sector and recovery in agricultural production on the supply side.*" Commenting on the future outlook, RBI indicated that India is poised to remain the fastest growing major economy in 2025–26 by leveraging its sound economic fundamentals. The growth has been accompanied by positive developments in poverty reduction. World Bank commented in its overview[1] of Indian economic performance:

> *Since 2000, the economy has nearly quadrupled in real terms, and per capita income has almost tripled. Its share in the global economy has doubled – from 1.6 percent in 2000 to 3.4 percent in 2023 – making India the world's fifth-largest economy. This growth trajectory has been accompanied by a substantial reduction in extreme poverty (from 16.2 percent in 2011–12 to 2.3 percent in 2022–23) and a significant expansion in infrastructure and access to basic services.*

The country has an ambitious vision (Viksit Bharat) of transforming in to a developed nation by 2047[2] with economic prosperity and overall high quality of life. A primary economic objective is to achieve a substantial GDP level, with targets ranging from USD 30 trillion to USD 40 trillion by the year 2047. This economic expansion is expected to generate more dynamic livelihoods opportunities and significantly raise per capita incomes, with projections indicating a rise between USD 15,000 and USD 18,000 per year. On the social development front, the initiative aspires to achieve zero poverty, seeking to uplift the underprivileged through inclusive development and financial empowerment. A key pillar of this vision is the assurance that

every citizen has access to quality education and healthcare. Delivering India's ambitious vision for Viksit Bharat will require policy reforms and strategies to fully exploit the potentials of labour, capital, and productivity. Key priorities include trade and investment liberalisation, labour reforms, and product market rationalisation and policy consistency aimed at a stable economic environment. According to International Monetary Fund (IMF), complementary efforts – such as reforms in agriculture, land, and the judiciary, along with investments in education, skills, public health, and female labour force participation – will be critical to accelerate human capital accumulation and enable the shift toward more productive sectors. India should position itself as an attractive destination for foreign investment and high-end technologies, work on enhanced global trade competitiveness and strengthen its status in a rapidly evolving global economy.

Economic growth in India, which has remained robust over the past few years, has been accompanied by positive developments in poverty reduction and improved social welfare nets. However, significant development challenges persist, driven by structural bottlenecks, resource scarcities, and limited livelihood opportunities for those at the bottom of the economic pyramid.

1.1. Development Challenges and Responses

1.1.1. Adequacy of Policy Response

The union and state governments have been designing and implementing a wide range of policies to address the different challenges faced by marginal livelihoods and communities at the bottom of the economic pyramid Path-breaking initiatives – such as making food security a statutory entitlement and establishing a legal right to 100 days of employment for every rural household–have been sustained and strengthened across successive governments, underscoring their critical role in promoting welfare and social protection. The COVID-19 pandemic, however, had a debilitating impact on several sectors of the economy and disproportionately affected vulnerable populations. Since then, policy responses have largely remained in an extended relief mode. Ramesh Arunachalam observes in his later chapter on policy and programmes that against this backdrop of recovery from Covid, climate stress, and digital transformation, the critical question for 2023-25 was whether budgetary allocations and programme design would catalyse structural transformation or merely extend crisis-era relief. The period reveals a persistent tension between immediate relief and long-term productivity enhancement in India's livelihood architecture. He concludes that, design inertia and the proliferation of more than 100 overlapping schemes dilute administrative focus and weakens implementation. The false binary of having to make a choice between protection and promotion persisted in the policy circles.

In terms of programme strategy, Direct Benefit Transfers (DBTs) have improved delivery efficiency but created new exclusion channels. The ever-increasing Know Your Customer (KYC) needs, use of electronic means of authentication where rate of failure is high, necessity of owning android mobile handsets, subscription to data services for accessing several government schemes, and low digital literacy in many parts of rural India create an exclusion zone among people – with both voluntary and compulsory exclusion taking place.

1.1.2. Existence of a Large Number of Relatively Poor Households

The Multidimensional Poverty Index introduced by NITI Aayog[3] revealed that despite the significant advances made in poverty reduction, one out of every seven Indians (Table 1.1) face deprivation of some kind (and multiple ones in many cases).

Despite a wide range of government initiatives – providing both direct income support and indirect assistance through welfare schemes aimed at ensuring access to basic necessities – large pockets of underserved populations continue to exist. Many individuals still face barriers related to

Table 1.1: Multidimensional Poverty

Snapshot of Multidimensional Poverty in India			
Year	**Headcount (H)**	**Intensity of Poverty (A)**	**MPI (HxA)**
2019-21	14.96%	44.39%	0.066
2015-16	24.85%	47.14%	0.117

Source: National Multidimensional Poverty Index: A Progress Review 2023

access and exclusion, which limit their ability to fully benefit from government programmes and emerging economic opportunities. The efforts to tackle such access barriers and exclusion issues through technology and mobilisation are ongoing and show positive results as seen in decline in number of multidimensionally poor (MPI) between 2016 and 2021.

1.1.3. Inadequate Employment Opportunities and Viability of Incomes

India's large and youthful labour force offers a significant 'demographic dividend'. However, this dividend can be fully realised only if adequate livelihood opportunities – whether through wage employment or self-employment – are available at wage levels and working conditions that ensure decent quality of life. The dividend is not likely to last forever, with falling birth rates and increasing life expectancy. The additions to the workforce each year have to be met by additions to jobs. Underemployment in the agriculture sector, jobless/low-job growth in the manufacturing sector, high growth in services sector demanding informal gig workers, and unabated migration are salient features of the employment market. The trends have been that after the high unemployment rates in the year following Covid, jobs growth was robust, but have moderated. The Ministry of Statistics and Programme Implementation (MOSPI) data shows that unemployment has hovered around 6 percent over the last 18 months. The Centre for Monitoring Indian Economy Pvt. Ltd. (CMIE), which also maintains a long term trend data shows a marginally higher level of unemployment (than MOSPI), but all indices show a declining unemployment trend over the last year. The move towards urban areas in search of jobs has also meant that urban unemployment rates have mostly been higher than the rural areas.

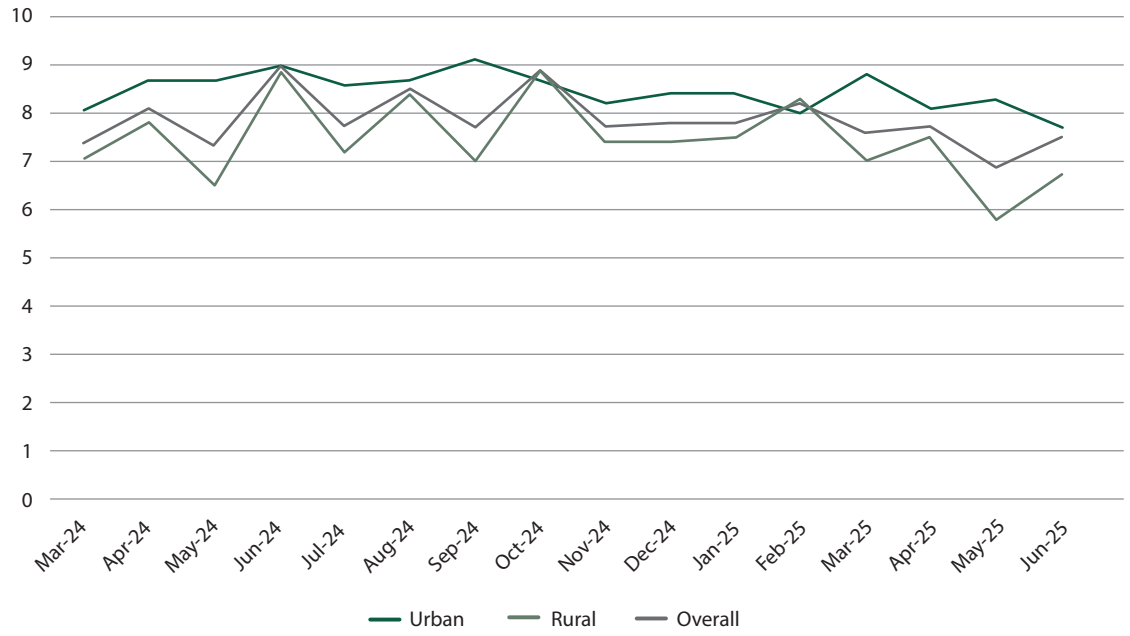

Figure 1.1: Rural and Urban Unemployment Rates[4]

Source: India's Periodic Labour Force Survey (PLFS)

Incomes from jobs for those at the bottom of the economic pyramid have been uncertain at household levels. The Rural Economic Conditions and Sentiments Survey (RECSS) survey[5] found that 18 percent of the households reported a decrease in income in last one year (which is the lowest level recorded since the survey started first in September 2024 - Chart 2). Stagnation in income was reported by 44.5 percent of the rural households, which is the highest among all rounds of the survey. 72.8 percent of respondents expected the income outlook to improve over the next one year (as against only 54 percent that were positive about income improvement over the next quarter). The continuing inflation, especially at consumer level erodes the real value of incomes. The reset of minimum wages lags the erosion, both in time and value terms, introducing income risks to livelihoods.

Rajesh Joseph in his chapter on Jobs and Employment, (appearing later in this report) points to the fact that seasonal variations in employment makes livelihoods uncertain. The gender divide in both access to jobs and wage levels discriminate against women, though considerable advances have been made in addressing gender imbalance. Although the tendency towards casualisation of work is declining, a growing share of employment is turning to self-employment (Table 1.2). This shift, however, brings its own challenges: income uncertainty, lower wages, and the absence of formal protection measures, all of which impact livelihoods adversely. This shift towards self-employment, according to Economic Survey 2025, reflects growing entrepreneurial activity and a preference for flexible work arrangements. Rajesh rightly highlights the fact that more technology adoption has led employment towards the informal status than formal. The need for better working conditions and improved dignity of labour have to be addressed even as we crack the unemployment problem.

Table 1.2: Shift towards Self-employment

Year	Self-employed %
2017–18	52.2
2018–19	52.1
2019–20	53.5
2020–21	55.6
2021–22	55.8
2022–23	57.3
2023–24	58.4

Source: Periodic Labour Force Survey (PLFS), Annual Reports. Ministry of Statistics & Programme Implementation (MoSPI), Government of India

Dr Chetan Choithani, in his chapter on Rural Urban Migration, observes that the structural transformation that reduced the contribution of agriculture to a low share of GDP has induced former farm workers to move to cities for alternative livelihoods. 'Most rural-urban migrants work in the precarious urban informal sector without livelihood security and social protection. The informal employment prevents low-skilled migrants from carving permanent urban futures…'. He emphasises that informal urban jobs provide important alternatives to make up for the decline in agrarian livelihoods. Remittances from migrants sustain their families back home and maintain land and agriculture. Yet, policy significance of migration is not adequately acknowledged and policies that support decent and dignified livelihoods for migrant workers in urban areas are sorely lacking. Thus, the last few rungs in the employment ladder place livelihoods precariously in terms of wage levels, uncertainty of job continuity, lack of effective protections, and welfare nets. However, effort by the government and employers to bring a larger share of the labour force under formal regulations – covering working conditions, minimum wages, insurance, provident fund provisions, and mechanisms for dispute resolution – are continuing and gradually improving conditions on the ground.

1.1.4. Limited Access to Basic Amenities and Social Security

As stated earlier, livelihoods stabilise only when access to basic amenities is available on reliable terms. The data underlying the MPI shows deprivations of different kinds; even where incomes might be adequate, the quality of life is impaired by limitations of access to health, education, and basic necessities. Figure 1.2 shows high levels of deprivation in access to fuel,

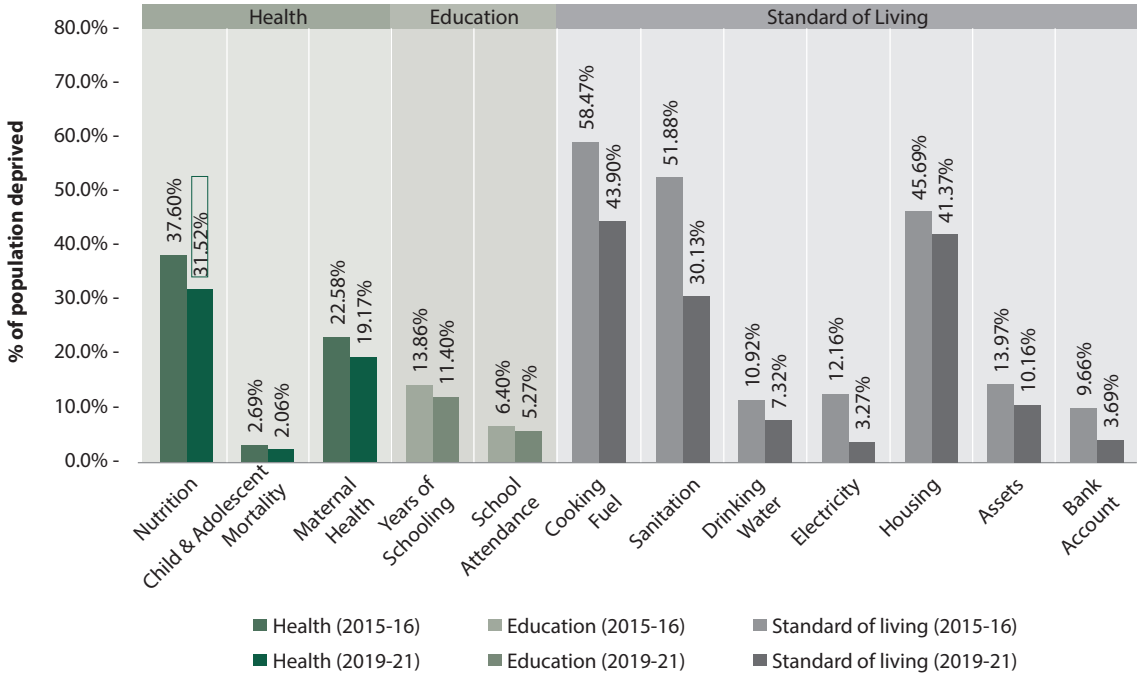

Figure 1.2: Access to Basic Necessities[6]

Source: National Multidimensional Poverty Index, Progress Review 2023 - NITI Aayog

sanitation, water, and housing. Maternal health and nutrition also show severely limited access. But the silver lining is that the country is catching up very fast in reducing the access deficit.

1.2. Agriculture Livelihoods

Performance of agriculture sector has been encouraging over the last few years, even though certain regions and specific crop segments continue to face persistent challenges. Agriculture GDP had grown at an average of 4.44 percent over the period from 2021 to 2025[7]. Despite migration from rural areas and a reluctance on the part of youth to stay in agriculture and allied livelihoods, the level of dependence on agrarian economy has remained high. According to the Periodic Labour Force Survey (PLFS) 2023–24[8], the agriculture sector remains dominant in employment, with its share rising from 44.1 percent in 2017–18 to 46.1 percent in 2023–24. The share of female workers in agriculture has increased significantly, from 57.0 percent in 2017–18 to 64.4 percent in 2023–24, whereas, male participation in agriculture decreased from 40.2 percent to 36.3 percent.

The Economic Survey 2025 noted that assured remunerative prices, improved access to institutional credit, crop diversification, support for sustainable practices, and enhancement in productivity have all played crucial roles in the sustained agricultural growth. Economic Survey 2025 also observed that agricultural income has increased at 5.23 percent annually over the past decade, compared to 6.24 percent for non-agricultural income, and 5.80 percent for the overall economy. The National Automated Fingerprint Identification System (NAFIS) 2024[9] found that agricultural households reported an average monthly income of ₹13,600, ranging from around ₹9,300 in Bihar or Odisha to ₹33,000 in Punjab and ₹22,000 in Haryana. Of the income, more than 50 percent was from non-agricultural sources. For a household, the average income levels reported seem adequate for subsistence, not progress. The regional differences in income levels point to deeper problems in some states.

The challenges facing agricultural livelihoods are well known, with the most significant relating

to the uncertainties of nature and the fluctuations of markets. Beyond price volatility, government policies that prioritise keeping consumers' food costs low have often placed farmers at a disadvantage. Siraj Hussain, *et. al.*, in their chapter on 'Farmers and Consumers in Competition' highlight that the government's efforts to keep food prices low have adversely affected the livelihoods of nearly 47 percent of the Indian population that depends on agriculture. As a result, the burden of keeping food inflation low has often fallen on farmers, producers, and the work force dependent on agriculture even as they battle nature, with climate change a tangible presence in crop production systems.

In their chapter on 'Advancing Agroecology', Nitin Khumbar, et. al., point out that:

> *Resilience of the agricultural sector is challenged by heat stress during critical growth periods with uncertain shifts in pest and disease dynamics, which may trigger the emergence of minor pests as significant threats. While modern agricultural practices contribute to an increase in food production, they disrupt the ecological balance, and can erode long-term sustainability. Pressure to produce more, comes at the cost of soil health, water resources and biodiversity. There is an urgent need to bridge the gap between productivity, environmental protection, and economic viability.*

Ramesh Arunachalam in his chapter on policy and programmes observes that inadequate attention to climate resilience and adaptation in rural areas is a critical deficiency. In terms of allocation of funding, both from government and private sources for climate resilience, energy and mobility sectors attract the lion's share, leaving little for agriculture adaptation. This imbalance in both policy attention and funding needs early redressal.

1.3. Financing Livelihoods

While the government continues to strengthen policy enablers and support systems for better livelihoods, the need to finance small-scale livelihood activities across the country has also received consistent attention. Several schemes, spanning multiple sectors, deal with a range of financial services necessary for small ticket customers. In agriculture, Kisan Credit Cards (KCCs) have extended their reach and subsidised interest production loans support a large number of small farmers. The agri stack is already digitalising processing and monitoring of loans, cutting down time and costs. The National Rural Livelihoods Mission (NRLM) with its massive coverage of Self-help Groups (SHGs) is beginning to focus on income enhancement (with Lakhpati Didi type initiatives) and enterprise development; bank credit of more than ₹3 trillion flowed to more than 8.5 million SHGs with high rates of repayment. Microfinance sector has been supporting very tiny livelihood activities with good record of credit discipline, though subject to cycles of default and eustress. Systemic measures to deal with such adverse cycles have been internaliaed and implemented. Microfinance covers about 140 million accounts with credit of ₹3.8 trillion as at end March 2025. Underneath these large credit initiatives are the financial architecture, financial inclusion initiatives (such as Jan Dhan-Aadhaar-Mobile or JAM trinity), technology integration, hygiene factors such as credit bureaus and regulation for development. Newer and more useful mass-based tools such as Unified Payments Interface (UPI) and Unified Lending Interface (ULI) are transforming the small holder access to and use of financial services. However, significant access challenge persist, with roughly 45 percent of farmers still relying partly or entirely on informal credit, alongside continued difficulties faced by those deemed below the threshold of bankability. Even so, the broader financial sector outlook (from policy, regulation, and practice perches) has been increasingly focused on including all segments of the population into the fold and designing scalable solutions that expand inclusion incrementally.

This report has nine more chapters that follow on a range of themes and aspects relating to livelihoods authored by highly knowledgeable practitioners. A flavour of some of these later chapters has been introduced in the relevant sections of this overview chapter.

Some other chapters not referred to so far relate to Opportunities for Women in Non-farm Livelihoods, Technology for Livelihoods, and Bridging Corporate Social Responsibility (CSR) Connect.

While challenges persist, but with lesser degrees of intensity each passing year, India has seen a positive environment for livelihoods improvement. There has been good growth in employment in recent years, as highlighted by labour market indicators that show strong signs of post-pandemic recovery and increased formalisation of the economy. This growth can be attributed to notable achievements in entrepreneurship, formalisation, skill development, and the transformation of the regulatory framework. The social sector interventions in health, education, food security, employment, and financial inclusion have resulted in inclusion of a large number of hitherto marginalised sections of population. Integration of technology in to development programmes, both in planning and implementation has improved the ease of access and leakage-free delivery. Inclusion levels have increased at an unimaginable pace, while reported technology-based exclusions are being dealt with.

Economic Survey 2025 observes:

> *…the Indian economy's growth story emphasises a welfare-enhancement approach by the government, focusing on empowering all citizens and ensuring the efficient delivery of welfare measures. The government's initiatives aim to provide opportunities for everyone, enabling them to achieve their professional and personal goals. With the focus on education, health, skilling, and innovation, with improved social and economic infrastructure the aim is to achieve welfare for all.*

Given the size of the country and the large number of people without viable livelihoods, what has been done, though done well, is not enough; there is a need to do more – much more. Viksit Bharat 2047 offers a sound vision; which when realised should place the country in a different orbit.

Endnotes

1 https://www.worldbank.org/en/country/india/overview

2 100 years from achieving independence

3 National Multidimensional Poverty Index, Progress Review 2023 – NITI Aayog, GOI 2023.

4 Based on data from Centre for Monitoring the Indian Economy. Available at https://www.cmie.com/kommon/bin/sr.php?kall=warticle&dt=20251103113230& msec=430.

5 Rural Economic Conditions and Sentiments Survey, September 2025, NABARD

6 National Multidimensional Poverty Index, Progress Review 2023 – NITI Aayog, GOI 2023.

7 Source: RBI Annual Report 2024-25 – RBI- August 2025.

8 Source: MOSPI

9 NABARD All India Rural Financial Inclusion Survey 2021-22 – NABARD – October 2024.

Policy and Programme Response to Revive Livelihoods, 2023–2025: From Recovery to Resilience?

2

Ramesh Srivatsava Arunachalam

2.1. Introduction – Context for 2023–25

The transition from 2022 to 2023 marked a turning point in India's livelihood landscape. Emergency measures during 2020–22 had helped prevent widespread collapse, but as normalcy returned, concerns emerged about whether these interventions fostered lasting resilience or merely offered temporary relief. The years 2023–25 are therefore pivitol in determining whether India's policy framework has successfully shifted from reactive crisis response to proactive resilience-building.

Macroeconomic indicators reflected recovery alongside challenges. The gross domestic product (GDP) grew by 7.0 percent in the financial year (FY) 2022–23 and 8.2 percent in FY2023–24 (National Statistics Office or NSO provisional estimates, 31 May 2024), yet employment quality lagged.[1] The Periodic Labour Force Survey (PLFS) data showed unemployment rising slightly from 3.1 percent (January–December 2023) to 3.2 percent (January–December 2024).[2] While far below pandemic highs, gains came largely from self-employment and agricultural absorption rather than formal job creation, raising doubts about sustainability.

Climate volatility escalated sharply. In 2023, erratic monsoons struck 13 states, while the India Meteorological Department (IMD) recorded 235 extreme weather days – a 15 percent increase over the previous year. The livelihoods of an estimated 140 million agricultural and allied workers were disrupted, alongside significant losses in urban informal employment. These shocks elevated climate adaptation to the forefront of livelihood policy. By 2024, the urgency was undeniable: in just the first nine months alone, India endured extreme weather on 255 of 274 days, affecting 35 of 36 states and union territories (UTs). The toll was severe – 3,238 lives lost, 3.2 million hectares of crops damaged, 235,862 houses destroyed, and nearly 9,500 livestock killed – cementing climate resilience as a non-negotiable foundation for future livelihood programmes.[3, 4, 5]

Digital transformation brought both opportunities and risks. The gig and platform economy expanded rapidly, with the workforce projected to cross 1 crore by 2024–25 and reach 2.35 crore by 2029–30 (National Institution

for Transforming India or NITI Aayog).[6] Simultaneously, automation eroded jobs in manufacturing, where employment fell even as output rose – highlighting the disruptive effects of technology on livelihoods. External headwinds compounded domestic challenges. Inflationary pressures, supply chain realignments, and geopolitical tensions constrained growth. To control inflation, the Reserve Bank of India (RBI) raised the repo rate from 4 percent to 6.5 percent, maintaining this stance until January 2025 before cutting to 5.5 percent.[7] Export-dependent sectors such as textiles and handicrafts suffered demand contraction, affecting millions of workers.

It is important to note that this chapter draws on multiple data sources: PLFS bulletins for employment, NSO national accounts for sectoral trends, union and state budgets for fiscal priorities, scheme dashboards for implementation metrics, and field case studies for qualitative insights. This triangulated approach is adopted to ensure robust findings.

Against this backdrop of recovery, climate stress, and digital transformation, the critical question for 2023–25 was whether budgetary allocations and programme design would catalyse structural transformation or merely prolong crisis-era relief. The period highlighted a persistent tension between immediate protection and long-term productivity enhancement in India's livelihood architecture. Budgetary allocations remained heavily weighted toward safety nets and direct income support – Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), food subsidies, and state-level cash transfers – which collectively absorbed the bulk of social sector spending. These instruments were effective in preventing destitution and maintaining consumption floors, yet their design philosophy remained fundamentally defensive. The emphasis was on stabilising household income rather than fostering productivity growth, market integration, or climate-adaptive capabilities. Enterprise support – such as Prime Minister's Employment Generation Programme (PMEGP), National Rural Livelihoods Mission (NRLM), and farmer producer organisation (FPO) development – received modest allocations and struggled with structural barriers including complex approvals, inadequate working capital, and weak market linkages. Credit guarantee mechanisms expanded through Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) and Emergency Credit Line Guarantee Scheme (ECLGS), yet 78 percent of stressed accounts remained concentrated among microenterprises, and average loan sizes for micro units were still seven times smaller than for medium enterprises. As a result, the policy architecture functioned more as a palliative system – cushioning shocks and sustaining livelihoods at subsistence levels – than as a transformative platform for building capabilities, assets, and pathways to upward mobility for smallholder farmers, microenterprises, and informal workers.

This protective tilt had consequences for climate adaptation and employment quality. Climate resilience, despite escalating urgency, remained peripheral to livelihood programme design. While MGNREGS shifted 67 percent of works toward natural resource management by 2024-25, a Comptroller and Auditor General (CAG) audit found only 61 percent of assets functional after two years, with irrigation channels lacking water sources and check dams misaligned with watersheds. Agricultural adaptation lagged severely: only 14 percent of farmers adopted climate-resilient practices, Pradhan Mantri Fasal Bima Yojana (PMFBY) design exclusions left individual losses uncompensated, and weather-indexed insurance remained underdeveloped. Urban heat stress – costing an estimated ₹34,000 crore annually in productivity losses – went entirely unaddressed in informal sector programmes. Climate considerations were treated as sectoral add-ons in energy and mobility policies rather than being systematically embedded into livelihood schemes through risk modeling, adaptive asset creation, or ecosystem support for resilient crops and practices. Employment policies showed mixed results: while PLFS recorded unemployment at 3.2 percent in 2024, gains came predominantly from agricultural absorption and self-employment rather than formal job creation. Manufacturing employment fell despite higher output under production linked incentive (PLI) schemes, which generated only 12 lakh jobs against ₹1.97 lakh crore committed and prioritised capital-

intensive sectors over labour-intensive industries employing more than 50 million workers in textiles, handicrafts, and food processing. Skill training reached 4.8 lakh urban beneficiaries through National Urban Livelihoods Mission (NULM) with only 42 percent placement at barely-above-minimum wages, while the platform workforce of 4.8 million gig workers remained excluded from any tailored support despite income volatility and algorithmic pressures. The following subsections examine how these patterns manifested in union and state budgets, revealing both the scale of commitment and the limits of prevailing approaches.

2.2 Budgets and Policy Priorities

2.2.1. Union Budget 2023–24 and 2024–25

The union budgets shifted from emergency welfare to growth-oriented spending, assuming employment gains would follow expansion. Livelihood allocations reflected this transition.

Agricultural support remained significant. PM-KISAN held steady at ₹60,000 crore annually, covering 9.88 crore families,[8] though its real value fell due to 12 percent annual input inflation.[9] Agricultural credit consistently exceeded targets, averaging 113 percent achievement (2020–21 to 2024–25). For 2025–26, the target rose to ₹32.50 lakh crore, including ₹5 lakh crore for animal husbandry, dairy farming and fisheries.[10] However, only 42 percent of credit reached small and marginal farmers (National Bank for Agriculture and Rural Development or NABARD).[11]

Urban livelihood support was limited. NULM budget rose slightly from ₹1,095 crore (2023–24) to ₹1,195 crore (2024–25),[12] despite an informal workforce of 139 million. Pradhan Mantri Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) disbursements fell from ₹800 crore to ₹450 crore, reducing focus on street vendors.[13]

Skill and entrepreneurship allocations grew modestly. Skill India Mission (SIM) budget increased from ₹1,435 crore to ₹1,658 crore,[14] though the National Skill Development Corporation (NSDC) found only 47 percent of trainees employed within six months.[15] Prime Minister's Employment Generation Programme (PMEGP) loans rose from ₹2,374 crore to ₹2,650 crore,[16] with bank rejection rates declining from 63.5 percent (2019–20) to 42.3 percent (2024–25),[17] but credit barriers persisted.

Social security trends were mixed. PM Shram Yogi Maan-dhan underperformed, with just 4.6 million enrolments against a 100 million target.[18] Ayushman Bharat allocations expanded, recognising health shocks as a major livelihood risk. A ₹250 crore pilot for platform worker social security[19] was introduced, though small relative to sector size.

2.2.2 State Budget Innovations

States tailored programmes to local needs, often filling gaps in central allocations of a thematic or financial nature.

The flavour of the season seemed to be income support to women (with all resultant

Table 2.1: Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) Allocations and Releases (₹ crore)

Financial Year (FY)	Budget Estimate	Revised Estimate	Fund Released
2020–21	61,500.00	1,11,500.00	1,11,170.86
2021–22	73,000.00	98,000.00	98,467.85
2022–23	73,000.00	89,400.00	90,810.99
2023–24	60,000.00	86,000.00	89,268.30
2024–25	86,000.00	86,000.00	85,838.76

Source: PIB (2025), Ministry of Rural Development

political economy considerations). Tamil Nadu launched the Kalaignar Magalir Urimai Thogai with ₹13,720 crore to provide ₹1,000 monthly to 1.15 crore women heads of households, with low administrative costs of 1.2 percent.[20] Karnataka's Gruha Lakshmi, launched in 2023, allocated ₹28,608.40 crore in 2024–25 for ₹2,000 monthly transfers to 1.28 crore women, reducing inclusion errors to 4.3 percent but consuming 8 percent of the state budget.[21]

Rajasthan revived the Indira Gandhi Shahari Rozgar Guarantee Yojana in 2023, allocating ₹800 crore,[22] guaranteeing 100 days of urban work and generating 2.41 crore person-days in its first year.[23] Odisha's MUKTA, merged with MGNREGA, extended employment to 200 days in migration-prone districts[24] with ₹1,400 crore annually, reducing distress migration by 67 percent.[25]

Maharashtra launched the Lek Ladki Yojana in 2023 with ₹3,000 crore,[26] providing ₹75,000 conditional transfers[27] linked to girls' education milestones, addressing intergenerational poverty but facing implementation hurdles. Kerala revamped the Ayyankali Urban Employment Guarantee Scheme with ₹150 crore in 2023–24,[28] focusing on skill-intensive jobs; 34 percent of participants transitioned to formal work,[29] though 18 percent administrative costs raised concerns.[30]

States also diverged from central trends in food and housing. While the centre reduced subsidies after Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY), Chhattisgarh and Telangana spent ₹12,000 crore[31] on food security. Similarly, with central housing allocations reduced, Andhra Pradesh and West Bengal added ₹8,500 crore through state schemes.[32]

2.3. Flagship Schemes – Comparative Review

2.3.1. MGNREGS – Evolution and Challenges

MGNREGS in 2023–25 combined learning with long-standing structural frictions. Person-days of work fell from 389.09 crore (2020–21) at the Covid peak to 293.70 crore (2022–23), rose to 309.01 crore in 2023–24, and then declined again to 290.60 crore in 2024–25.[33] Average days of work per household slipped from 52.08 (2023–24) to 50.23 (2024–25);[34] only 5.7 percent of households reached the 100-day guarantee.[35]

Wage delays declined but persisted: the all-India average delay fell from 21 days (2022–23) to 17 days (2023–24),[36] masking stark state gaps – Kerala/Tamil Nadu ~8 days versus Bihar/West Bengal >45 days.[37] National Electronic Fund Management System (NeFMS)[38] achieved universal rollout by 2023 and sped fund transfers, yet administrative bottlenecks – measurement and attendance verification – still held up payments.[39]

Asset creation tilted toward climate resilience: natural resource management rose from 52 percent (2022–23) to 67 percent (2024–25),[40] including 12 lakh water conservation structures and 8.4 lakh drought-proofing works.[41] Yet, a 2024 CAG audit revealed that only 61 percent of these assets remained fully functional after two years,[42] pointing to design and planning gaps such as irrigation channels without water sources and check dams misaligned with watersheds.[43]

Women's participation exceeded 50 percent for five consecutive years, rising from 48 percent (2013–14) to 58.1 percent in FY 2024–25, equivalent to about 168.9 crore person-days worked by women, representing nearly 440.7 lakh individual beneficiaries – though field studies (Jharkhand, Madhya Pradesh) flagged task segregation and lower-pay activities.[44] Decentralisation guidance in 2023 expanded gram panchayat autonomy, but tighter technical sanctions and heavier tech monitoring effectively recentralised control. MGNREGA Soft logged 2.8 billion transactions (2023–24);[45] village staff reported ~40 percent of time absorbed by data entry.[46]

Convergence performance was mixed: Between 2016 and 2025, the program supported the construction of 2.829 crore rural houses, generating ~568 crore person-days of work.[47] Yet, only 12 percent of works directly enhanced agricultural productivity,[48] even though 73 percent workers depended on agriculture for their livelihoods.[49] Convergence with the Jal Jeevan Mission contributed to 2.3 lakh piped water projects,[50] but progress was uneven, with 34 percent of convergent works delayed due to inter-departmental issues.[51]

2.3.2. PM-KISAN – Coverage and Effectiveness

PM-KISAN sustained coverage of around ~9.88 crore beneficiaries[52] though with significant churn as 82 lakh farmers were removed and 67 lakh added through record updates and verification.[53] Integration with state land records through Farmer Registration and Unified Beneficiary Information System (FRUITS) reached 15 states by 2024,[54] curbing duplication. Yet, a CAG sample audit found 20.9 percent of beneficiaries ineligible[55] – including income-tax payers and government employees – while 38 percent of eligible tenants/sharecroppers were excluded due to the absence of ownership documents.[56] Scheduled caste (SC)/Scheduled tribe (ST) farmers formed only 16 percent of beneficiaries against 24 percent of farm households.[57]

The annual transfer limit of ₹6000 per farmer, has eroded in value over time in the face of increasing costs and incomes. Factoring rural inflation (CPI AL) the real terms support is only about ₹4500, amounting to 3.6 percent of an average farm household's annual income.[58]

State performance also diverged. Telangana reached 94 percent saturation through proactive drives and alignment with Rythu Bandhu,[59] while Bihar achieved 62 percent amid land disputes and capacity limits;[60] Arunachal Pradesh and Nagaland were <40 percent due to community land tenure.[61]

2.3.3. PM Fasal Bima Yojana – Technology and Trust Deficits

PMFBY enrolment rose from 3.17 crore (2022–23) to 4.19 crore (2024–25) (+32 percent),[62] yet farmer confidence remained brittle. The Yield Estimation System Based on Technology (YES-TECH) – using satellite and AI-enabled yield estimation – was introduced to expedite claim processing. While the average settlement[63] time fell from 74 days to 67 days in 2023–24,[64] it still exceeded the 30-day norm.[65] States using digital crop-cutting (e.g., Karnataka, Maharashtra) averaged 45 days for settlement;[66] states following traditional methods of crop estimation averaged 82 days[67] – a capacity, not technology, gap. Indian Council of Agricultural Research (ICAR) surveys found only 32 percent of farmers viewed PMFBY as beneficial.[68] Between 2016 and June 2025, about 78.4 crore applications were insured, of which 22.7 crore received claims amounting to ₹1.83 lakh crore.

Coverage rose from 371 lakh (2014–15) to 1,510 lakh (2024–25) applications, with non-loanee applications up from 20 lakh to 522 lakh.[69] Claim ratios exceeded 200 percent[70] in drought-prone Maharashtra/Karnataka districts but were <50 percent[71] in irrigated Punjab/Haryana, spotlighting pricing/risk-pooling issues. Design exclusions (events affecting <25 percent of a revenue circle) left individual losses uncompensated, driving exits among smallholders.[72] Three private insurers quit high-risk states in 2023 over loss ratios; public insurers absorbed risk. Agriculture Insurance Company of India (AIC) reported ₹3,247 crore accumulated losses by March 2024, requiring recapitalisation.[73,74]

2.3.4. Micro, Small and Medium Enterprises (MSMEs) and Credit Guarantee Schemes

Despite repeated interventions, MSME stress persisted. Emergency Credit Line Guarantee Scheme (ECLGS) disbursed ₹3.73 lakh crore (by March 2024);[75] as moratoria ended, 14.2 percent of loans showed stress (December 2023),[76] concentrated in micro enterprises (78 percent of stressed accounts).[77] Under Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), micro units (~95 percent of MSMEs)[78] received only 31 percent of guaranteed credit;[79] average loan sizes were ₹4.8 lakh (micro) versus ₹47 lakh (medium), reflecting lender bias toward larger, formal firms.[80]

FinTechs disbursed ₹87,000 crore (2023–24) to MSMEs,[81] growing 43 percent YoY;[82] at effective rates of 18–24 percent (vs bank 9–12 percent) which squeezed margins.[83] RBI Digital Lending Guidelines (2023) improved clarity[84] but increased compliance costs, partly passed to borrowers. Market access remained uneven: Government e-Marketplace (GeM) clocked ₹4.01 lakh crore (2023–24) transactions,[85] yet micro enterprises captured only 18 percent of value.[86] Open Network for Digital Commerce (ONDC)

listed 7,00,000 + sellers by January 2025, crossed 1.6 crore orders by March 2025, and recorded over 20.4 crore cumulative transactions, though adoption gaps persisted.[87]

Formalisation of the microenterprise segment lagged: just 1.4 million out of 63 million MSMEs were GST-registered (2024);[88] Udyam improved to 16.8 million registrations,[89] though many remained operationally informal (dual books, cash), limiting credit and scheme access.

2.3.5. PMEGP and NRLM – Self-Employment Challenges

PMEGP approved 1.03 lakh projects in 2023–24,[90] estimated to generate 8.25 lakh jobs,[91] with a three-year survival rate of 58 percent.[92] Women accounted for 28 percent of approvals,[93] while SC/ST entrepreneurs represented 22.3 percent, often concentrated in low-value traditional activities.[94] The average project cost (₹18.7 lakh)[95] and margin-money norms excluded many asset-poor youth, undercutting inclusion goals. As of June 2025, NRLM mobilised 10.05 crore women into 90.90 lakh self-help groups (SHGs),[96] building strong federated institutions. Still, only 34 percent of SHGs undertook income-generating activities beyond internal lending.[97]

Bank linkage credit reached ₹1.89 lakh crore (2023–24),[98] with stark dispersion – average ₹78,000 per SHG in Bihar versus ₹3.4 lakh in Tamil Nadu.[99] Non-performing assets (NPAs) were 2.4 percent,[100] though group pressure can mask stress. Non-farm enterprises touched 2.1 million members (2024), but market access was thin; One District One Product (ODOP) clusters showed early wins but limited scale. Gaps in professional management, technology adoption, and working capital beyond grants constrained growth.

2.3.6. Urban Livelihood Missions – Migrant Integration Gaps

With urban unemployment at 6.7 percent (2023–24)[101] and 139 million informal urban workers,[102] NULM reached only ~1.2 million beneficiaries annually[103] – insufficient at scale. Component performance was imbalanced: self-employment aided 87,000 people (2023–24);[104] skill training covered 4.8 lakh,[105] with 42 percent[106] placement and average wages of ₹8,200/month,[107] barely above city minimums. Employers cited behavioural/work-readiness deficits despite industry partnerships. Within the 139 million informal urban workforce, around 100 million are estimated to be migrants, many excluded by address and residency rules.[108]

City innovations remained siloed: Delhi Shramik Mitra registered 3.4 lakh construction workers;[109] Mumbai migrant help desks assisted 78,000 (2023),[110] but these were not mainstreamed into NULM. The platform workforce – 4.8 million urban gig workers (2024)[111] – had no tailored NULM support despite income volatility, lack of social security, and algorithmic pressures[112]. Rajasthan's Platform-Based Gig Workers Act, 2023[113] offered a welfare-contribution model, though implementation was nascent.

Street vendors stayed vulnerable with average earnings of ₹387/day (2023).[114] PM SVANidhi nonetheless scaled impressively – by 30 July 2025, with >96 lakh loans totalling ₹13,797 crore to >68 lakh vendors; ~47 lakh digitally active beneficiaries made >557 crore transactions worth ₹6.09 lakh crore, earning ₹241 crore in cashback; under SVANidhi se Samriddhi, 46 lakh beneficiaries were profiled across 3,564 ULBs, triggering >1.38 crore linked scheme sanctions.[115] Digital payment adoption reached 43 percent,[116] but cash preference and tech glitches still limited volumes.

2.4. Complementary Programmes and Innovations

2.4.1. Transformations in Food Security, Agriculture, Manufacturing, And Women's Participation (2023–25)

Between 2023 and 2025, India's policy landscape for livelihood and growth saw significant restructuring. Pandemic-era food relief measures were rolled back, while large-scale agricultural infrastructure finance was infused to modernise rural economies. Parallel efforts included the PLI-

driven push in manufacturing and new initiatives to enhance women's workforce participation. These interventions were ambitious in scale and they delivered tangible quantitative progress. Yet, persistent gaps remained – particularly in inclusivity, sustainability, and employment generation. The consolidated table below captures the full picture across four key themes.

Table 2.2: Complementary Programmes and Innovations: Policy Shifts, Allocations, Outcomes, and Challenges (2023–25)

Theme	Scheme/Area	Key Allocations and Data	Outcomes	Challenges/ \Gaps
Food Security	Pradhan Mantri Garib Kalyan Anna Yojana - Public Distribution System (PMGKAY-PDS)	800 million beneficiaries.[117] National Food Security Act (NFSA) entitlement 5 kg/person/month at ₹2–3/kg (unchanged since 2013). Food inflation avg. 6.8% annually.[118]	Return to subsidised PDS rations; free ration phase ended.	Consumption stress as households resumed payment; declining real value of entitlements.
	One Nation One Ration Card (ONORC)	Pan India rollout completed in June 2022. Although ONORC enabled 47.8 crore transactions in 2023–24, only 3.4% were inter-state, reflecting limited migrant uptake. [119,120]	Enabled portability across states.	Limited migrant usage due to awareness gaps, dealer resistance, split entitlements.
	Poshan Abhiyaan	₹3,482 crore (2023–24).[121] Stunting fell to 32%[122] (NFHS-6) from 35.5%[123] (NFHS-5).	Marginal nutrition gains.	Weak linkage with livelihoods. Anganwadi worker honoraria at ₹8,000/month,[124] below minimum wage.
	Food Fortification	71% PDS coverage (2024).[125] Added ₹2,800 crore annually.[126]	Broader reach of fortified rice/wheat/ oil.	Inconsistent quality; consumer rejection in some states; sustainability concerns.
Agriculture Infrastructure	Agriculture Infrastructure Fund (AIF)	Corpus: ₹1 lakh crore. By June 2025: ₹66,310 crore sanctioned; 1,13,419 projects; investment mobilised ₹1,07,502 crore. Major assets: 30,202 equipment hiring centres, 22,827 processing units, 15,982 warehouses, 3,703 grading units, 2,454 cold stores, 38,251 others.[127]	Significant infrastructure creation.	68% sanctions to projects >₹2 crore.[128] Only 19%[129] of value accessed by small/marginal farmers (86% of households).[130]
	Farmer Producer Organisation (FPO) Development (10,000 FPOs)	8,875 FPOs registered by June 2024.[131] Review of 500 older FPOs: 31% viable;[132] average. 500 members.[133] 73% lacked professional management.[134]	Quantitative progress in registrations.	Weak sustainability, low aggregation role. Only 24% achieved output market linkages.[135]
	Van Dhan Yojana (VDVKs)	4,624 VDVKs by August 2025.12.68 lakh members. ₹455.67 crore sanctioned.[136] Only 41% functional.[137] Average monthly income ₹3,200/ beneficiary.[138]	Expanded tribal entrepreneurship network.	Equipment breakdowns, working capital gaps, limited TRIFED (Tribal Cooperative Marketing Development Federation of India Ltd.) procurement (8% of targets).[139]
Manufacturing (PLI)	PLI Incentives (14 sectors)	Committed ₹1.97 lakh crore. Investment attracted ₹1.76 lakh crore. Beneficiary sales ₹16.5 lakh crore (mid-2025). Jobs: 12 lakh (direct + indirect).[140]	Boosted high-tech investment and exports.	Capital-intensive → limited jobs relative to spend.

Theme	Scheme/Area	Key Allocations and Data	Outcomes	Challenges/ \Gaps
	Sectoral Variations	Mobile phones: 2.1 lakh jobs.[141] Semiconductors/ display: ₹76,000 crore allocation,[142] only 35,000 jobs projected.[143] Textile PLI: 64 projects approved,[144] 27% investment realised,[145] 89,000 jobs vs 7.5 lakh projected.[146]	Sectoral outcomes diverged; mobiles better on employment.	High-tech bias excluded labour-intensive sectors (handicrafts, handlooms, food processing with 50 million+ workers). Skills gap slowed employment.
Women's Economic Participation	Labour Force Participation	Female Labour Force Participation Rate (FLFPR): 23.3% (2017–18)[147] → 41.7% (2023–24).[148] Global average: 47.8%.[149]	Modest rise in participation.	Still far below global average.
	Mudra Yojana	₹2.89 lakh crore loans to women in 2023–24.[150] Women = 69% of borrowers.[151] Average loan size: ₹38,000 (FY16) → ₹72,000 (FY23) → → ₹1.02 lakh (FY25).[152]	Women dominated borrower base.	43% of loans[153] used for consumption/debt repayment, not enterprise creation.
	Stand-Up India	Women entrepreneurs: 55,644 → 1,90,844 (2017–2025). Sanctions: ₹12,452.37 crore → ₹43,984.10 crore.[154]	Sharp expansion in women-led loans.	Lack of systemic evaluation; sustainability unclear.
	Care Economy (Palna under Mission Shakti)	February 2025: 52,151 children covered. 1,761 AWCCs (28,783 children), 1,284 standalone crèches (23,368 children). Private childcare costs ₹3,000–8,000/month urban.[155]	Expanded childcare access.	Fragmented, limited hours unsuitable for working mothers; no eldercare; 48% of women[156] cite family duties as barrier to work.

The consolidated data reveals a paradox of scale and impact. Food security moved from free rations to subsidised distribution, but unchanged entitlements and rising food inflation eroded nutritional security. Efforts at fortification showed mixed community acceptance. In agriculture, Large-scale infrastructure finance and the rapid formation of FPOs demonstrated strong financial mobilisation, yet outreach to smallholders was uneven and questions over the institutional sustainability of FPOs persisted. Manufacturing through PLI succeeded in attracting high-value investment and boosting exports, but its capital-intensive focus limited job creation, leaving labour-intensive sectors underrepresented.. For women, while Mudra and Stand-Up India dramatically expanded credit access and labour force participation improved modestly, enterprise sustainability, childcare provision, and eldercare support remained weak, constraining deeper inclusion. Overall, India's strategies during 2023–25 mobilised unprecedented resources but faced consistent challenges in equitable reach, employment intensity, and long-term resilience. The sustainability of early gains is also a pressing concern.

2.5. Lessons

The 35-lesson table groups insights under five clusters – Programme Design and Effectiveness (Lessons 1–7), Delivery Systems and Digitalisation (8–13), Climate Resilience and Adaptation (14–18), Inclusion and Equity (19–28), and Resilience, Learning and Future Readiness (29–35) – so leaders can see both *what* is happening and *why*, along with clear *implications*. Read horizontally to connect "Cause → Effect → Implication" for each lesson; read vertically within a cluster to detect patterns (e.g., recurring design biases, measurement failures, or

capability gaps). The structure is purposely non-duplicative: later lessons build on earlier ones and sharpen their operational meaning (e.g., Lesson 6 on misaligned metrics underpins Lessons 9, 12, 13 on dashboards, grievance redress, and evaluations).

Table 2.3: Lessons

Theme	Lesson	Cause	Effect	Implication
Programme Design and Effectiveness				
1	Pandemic-era livelihoods programmes persisted beyond crisis, revealing inertia in design.	Path dependency and political salience of legacy schemes.	Schemes remained crisis-centric rather than transformative.	Requires structural redesign based on labour market diagnostics.
2	Overlapping schemes dilute impact.	147+ fragmented programmes with similar objectives.	Duplication, confusion for beneficiaries, administrative overload.	Consolidation into fewer, integrated interventions is critical.
3	Balance between protection and promotion remains unresolved.	Relief-heavy designs (MGNREGA, Direct Benefit Transfers or DBTs).	Prevents destitution but does not ensure upward mobility.	Dual floors (safety nets) and ladders (capability building) must coexist.
4	Enterprise promotion schemes underperform.	Complex approvals and viability hurdles.	Exclusion of most needy entrepreneurs.	Simplification and risk-sharing financing needed.
5	State-level implementation capacity shapes outcomes more than central design.	Variations in governance and political priority.	Tamil Nadu pays MGNREGA wages in 8 days; Bihar takes 45.	Federal benchmarking and peer learning can spread good practices.
6	Performance metrics often distort objectives.	Input/activity-based monitoring (person-days, enrolments).	Asset quality, job placement, and sustainability ignored.	Outcome-based financing models needed.
7	Urban workers remain neglected.	Policy skew to rural voters and schemes.	Heat stress, platform precarity, and urban informality unaddressed.	Dedicated urban livelihood framework required.
Delivery Systems and Digitalisation				
8	Digital transfers reduce leakages but create new exclusions.	Digital divide, KYC/ documentation barriers.	Exclusion of migrants, elderly, women.	Assisted access models essential.
9	Centralised dashboards mask local realities.	Focus on quantitative data.	Illusion of transparency but poor ground truth.	Must combine MIS with field verification and qualitative data.
10	Intermediaries persist despite digitisation.	System complexity and literacy gaps.	Beneficiaries pay commissions to access entitlements.	Policy must recognise intermediary role and regulate it.
11	Social audits ritualized.	Pressure on frontline staff, lack of follow-up.	Token participation, suppressed findings.	Empower communities and ensure enforcement of audit findings.
12	Grievance systems underperform.	CPGRAMS shows resolution but lacks quality.	61% dissatisfied with "resolved" cases.	Grievance systems need accountability loops, not only closure rates.
13	Evaluations lack rigour.	Political economy of "positive reports".	87% evaluations conclude favourably despite issues.	Independent, high-quality, context-specific evaluation systems essential.

Theme	Lesson	Cause	Effect	Implication
Climate Resilience and Adaptation				
14	Climate shocks outpace programme design.	Increasing extreme weather events.	3,238 lives lost, 3.2m ha crops destroyed in 2024.	Livelihood schemes must embed climate resilience.
15	MGNREGA's climate shift undermined by weak design.	38% structures flawed.	Poor irrigation, failed dams.	Technical oversight and climate science integration required.
16	Agricultural adaptation remains limited for various reasons, including inadequate budgetary support and insufficient access to credit resources.	Only 14% farmers adopt resilient practices.	Losses go uncompensated; poor crop insurance coverage.	Need localized weather-indexed insurance and resilient crop incentives. Change to climate resilient adaptation needs incentive push. Need for recalibration of existing schemes to push Climate Resilience Agricultural practices.
17	Urban heat stress ignored.	No workplace adaptation in informal jobs.	₹34,000 crore annual productivity loss.	Heat action plans must integrate livelihood protection.
18	Climate-smart training fails without ecosystem support.	No infrastructure/ market for resilient crops.	Low farmer uptake despite training.	Need bundled package (training + infra + credit+ markets).
Inclusion and Equity Dimensions				
19	Informal-to-formal transitions remain elusive.	Registration without structural change.	81.9% of workforce still informal.	Formalisation needs credit, compliance easing, and incentives.
20	Udyam registrations mislead.	68m units registered, but 67% operate informally.	Illusion of progress.	Must align registration with genuine compliance and credit.
21	Digital payments do not equal formalisation.	Cash dominates wholesale/ supply chain.	Tax visibility without business benefits.	Must link digital trails with credit and development support.
22	Labour codes stuck in limbo.	Rule notification delays, complexity.	Threshold evasion by firms, informalisation persists.	Enforceable simplification required, not dual regime.
23	Regional disparities widening.	Rich-poor state ratio rising to 3.5.	Youth unemployment >20% in NE.	Regionally tailored interventions needed, beyond "one-size" schemes.
24	Aspirational districts stagnate.	Focus on health/education, not jobs.	38% Labour Force Participation Rate (LFPR) vs 47% national.	Programmes must prioritise livelihood creation.
25	Tribal and Particularly Vulnerable Tribal Groups (PVTG) vulnerability persists.	Generic schemes misfit traditional systems.	68% poverty rates in PVTGs.	Customised, culturally sensitive models needed.
26	Gender empowerment remains shallow.	High Mudra access but low productivity.	Women's enterprises earn 3× less than men's.	Structural reforms for market access, technology, networks required.
27	Caste-based inequities persist.	SC/ST loans 30% smaller, survival lower.	Differential access, discrimination.	Targeted mentorship, market integration, credit enhancement needed.

Theme	Lesson	Cause	Effect	Implication
28	Intersectional disadvantages severe.	Dalit women face multiple barriers.	Lowest participation, lowest wages.	Collective SHG/enterprise models more effective than individual.
Resilience, Learning and Future Readiness				
29	Livelihood resilience remains reactive.	Emergency budget top-ups only.	Ad hoc expansion and contraction.	Build automatic stabilizers into programme design.
30	Climate mainstreaming absent.	Not built into design logic.	Resilience limited, losses recurrent.	All livelihood schemes must integrate vulnerability assessments.
31	Technology disruption accelerates exclusion.	Automation reduces jobs in both manufacturing and services.	47 million jobs at risk; reskilling lags.	Programmes must focus on future-proof skills.
32	Platform workers precarious.	Classified as contractors, no security.	Income volatility, no benefits.	Labour law must evolve for gig/platform economy.
33	Institutional learning weak.	Evaluations ignored, knowledge fragmented.	Programmes unchanged despite evidence.	Need national mechanism for adaptive learning.
34	Civil society marginalised.	Technocratic, top-down designs.	Poor responsiveness to realities.	Must re-integrate Civil Societies and movements in design.
35	Knowledge diffusion blocked.	No horizontal learning across states.	Innovations siloed, duplication persists.	Establish formal knowledge brokerage mechanisms.

2.6. Conclusion – From Crisis Scaffold to Resilient Architecture

The 2023–25 period underscores both the strengths and constraints of India's livelihood architecture. At one level, the state demonstrated its ability to reach scale, deliver resources digitally, and sustain budgetary commitment to employment and income security. Hundreds of millions of people were served, leakages were reduced, and the political consensus around livelihood protection endured. At another level, however, the system continues to function as a crisis scaffold – capable of scaling up in emergencies but unable to deliver transformative mobility, climate-ready resilience, or structural inclusion.

The lessons cluster into five clear themes. The first concerns **programme design and effectiveness (Lessons 1–7)**. Here, design inertia and the proliferation of more than 100 overlapping schemes dilute administrative focus. The false binary between protection and promotion persists, when both floors and ladders are needed together. Operational bottlenecks remain – enterprise promotion is overly complex, input-heavy metrics distort behaviour, and uniform national designs falter against wide state-capacity variance. The neglect of urban informality, despite its growing centrality in platform economies and climate vulnerability, further weakens the system. The takeaway is clear: India needs an integrated pathway model where programmes protect, build capabilities, and then graduate households into productivity, with uniform outcomes but state-specific tools.

The second cluster is **delivery systems and digitalisation (Lessons 8–13)**. DBTs have improved efficiency but created new exclusion channels. Dashboards, audits, and grievance systems often privilege what is measurable over what is lived and experienced, while evaluations frequently validate existing assumptions rather than interrogate them. The reform logic here is to build assisted digital access, combine quantitative MIS with field verification and beneficiary voice, and mandate independent, budget-linked evaluations that drive reform.

The third cluster is **climate resilience and adaptation (Lessons 14–18).** Climate volatility is rising, but programme designs rarely integrate risk models, engineering standards, or climate science. Even climate-oriented works falter without technical diligence. Behavioural change cannot be sustained without corresponding ecosystem shifts – such as insurance that pays, incentives for resilient crops, or heat adaptation for urban informal workers. The core lesson is that every scheme must be climate-ready by design – risk modelling, adaptation assets, O&M budgets, and verification must become first-mile requirements rather than afterthoughts. .

The fourth cluster addresses **inclusion and equity (Lessons 19–28)**. Registration is not formalisation unless compliance is eased and credit, supplier terms, and market access flow from digital trails. Regional and cultural contexts – Northeast states, Aspirational Districts, PVTGs – need bespoke designs. For women and SC/ST-led enterprises, productivity and survivability matter more than access counts, and collective or ecosystem models outperform atomised ones. The reform pathway is to replace optics of coverage with metrics of productivity, survivability, and upward mobility, disaggregated by gender, caste, and region, and backed by guarantees, market linkages, and mentorship.

The fifth cluster highlights **resilience, learning, and future readiness (Lessons 29–35)**. Automatic stabilisers and future-proof skills are still treated as add-ons rather than design features. Platform labour lacks an appropriate regulatory regime. Learning exists but is not absorbed: evaluations seldom shift programme design, civil society is sidelined, and horizontal diffusion of good practice is weak. The solution is to build a national adaptive learning spine: automatic triggers for benefit expansion during shocks, mandated policy updates from evaluations, a knowledge brokerage for inter-state diffusion, and formalised roles for CSOs and academia in design and oversight.

These cross-cutting themes expose a deeper structural imbalance between subsidy-oriented relief and productivity-oriented transformation. The evidence from 2023-25 confirms that India's livelihood policy framework has not yet resolved its foundational tension between protection and promotion. Subsidies and handouts – while politically necessary and socially vital during crises – have become structurally embedded without commensurate investment in productivity infrastructure, enterprise ecosystems, or skill-to-employment pathways. PM-KISAN transfers eroded to covering only 8 percent of marginal farmer cultivation costs, yet were not complemented by investments in irrigation efficiency, post-harvest infrastructure, or market access that could multiply returns. MGNREGS person-days declined even as climate shocks intensified, and only 12 percent of works directly improved agricultural productivity despite 73 percent of workers depending on agriculture. Women received 69 percent of Mudra loans totaling ₹2.89 lakh crore, but 43 percent went to consumption or debt repayment rather than enterprise creation, and women-led enterprises earned only one-third of male-led counterparts, signaling access without ecosystem support. FPO registrations reached 8,875, but only 31 percent achieved viability, 73 percent lacked professional management, and just 24 percent secured output market linkages. The pattern is consistent across schemes: programmes deliver benefits but do not build the institutional, technical, and market architecture required for sustained income growth. The focus remains on distributing resources rather than transforming production relations, on cushioning vulnerability rather than constructing resilience, and on counting beneficiaries rather than tracking productivity gains or enterprise survival rates.

This subsidy-productivity imbalance intersects with a climate deficit that threatens to unravel gains. Climate resilience, despite being the defining challenge of the next decade, has not been mainstreamed into livelihood design. India experienced extreme weather on 255 of 274 days in the first nine months of 2024, yet livelihood schemes operated without integrated climate risk assessments, adaptive asset standards, or automatic triggers linking weather events to benefit expansions. Agricultural policies promoted input subsidies over water-efficient crops, insurance design left small losses uncompensated, and urban informal workers received no workplace adaptation support despite documented heat-related productivity collapse. Of the ₹1 lakh

crore Agriculture Infrastructure Fund (AIF), 68 percent of sanctions went to projects above ₹2 crore, while only 19 percent reached small and marginal farmers who account for 86 percent of holdings. Van Dhan Kendra initiatives enrolled 12.68 lakh tribal members, but only 41 percent of centres remained functional, constrained by equipment failures and working capital gaps that undermined climate-smart forest produce enterprises. Employment policies generated numbers without quality: manufacturing under PLI schemes attracted ₹1.76 lakh crore but created only 12 lakh jobs – predominantly in capital-intensive electronics and semiconductors – while excluding labour-intensive sectors and yielding a jobs-to-investment ratio far below potential. The skill training apparatus placed less than half of participants in jobs barely above minimum wage, and the 139 million urban informal workers, including 100 million migrants, remained largely outside programme coverage due to residence requirements and design blind spots.

Taken together, the five clusters show how fragmentation of design (Cluster 1) is compounded by blind spots in delivery and measurement (Cluster 2), exposed by climate volatility (Cluster 3), and deepened by structural inequities (Cluster 4). Without institutionalised stabilisers and learning (Cluster 5), the system responds episodically, never compounding its gains. The logic of reform flows directly: unify architecture, fix delivery with inclusion rails, climate-proof all programmes, re-target to productivity and survivability, and embed adaptive institutions.

Thus, while scale, speed, and digital infrastructure have been achieved, *transformative mobility remains elusive*. Informal employment still covers more than 80 percent of the workforce, real wages remain stagnant, and minor shocks continue to push millions back into poverty. The system functions as palliative care, not structural cure. Programmes can surge in crises, but resilience remains contingent on fiscal space and uneven administrative capacity. Climate adaptation has not yet been embedded, leaving beneficiaries vulnerable to extremes.

Inclusion is partial: women's participation rose to 32.8 percent by 2023–24[157] from 23.3 percent in 2017–18[158] but still lags the global average of 47.8 percent;[159] Mudra loans to women reached ₹2.21 lakh crore in 2023–24[160] with women comprising 69 percent of borrowers – roughly 2.8 crore loans – with average loan sizes rising to ₹1.02 lakh in FY 25. Yet 43 percent[161] of these loans went to consumption or debt repayment.[162] Stand-Up India expanded women entrepreneurs from 55,644 to 1,90,844 between 2017 and 2025 with sanctioned amounts growing to ₹43,984 crore, but sustainability remains unclear.[163] ONORC processed 47.8 crore portable transactions in 2023–24, yet only 3.4 percent were inter-state. Care economy schemes such as Palna reached 52,151 children by February 2025, but fragmented childcare and absent eldercare continue to constrain women, with 48 percent citing family duties as the main barrier to work.[164]

Looking ahead, fiscal constraints, rapid technological disruption, and intensifying climate impacts will test the resilience of India's livelihood system. Demographic transitions and political economy dynamics could alter priorities. The global context of economic uncertainty and climate commitments adds further strain. The central question is whether India can redesign its livelihood architecture to be shock-proof, inclusive, and climate-ready.

The way forward is not more schemes but a new architecture with five non-negotiables: pathway integration that merges floors and ladders; inclusive delivery rails pairing DBT with assisted access and rigorous evaluation; climate-ready design as a first-mile requirement; productivity-centred inclusion that focuses on survivability and scale for women, SC/ST, migrants, and lagging regions; and adaptive institutions with automatic stabilisers, evaluation-to-policy loops, and a national diffusion platform.

If these reforms are embraced, India's livelihood system will no longer function as permanent relief punctuated by episodic upgrades, but instead as a framework of compounded mobility underpinned by resilience. In such a system, the familiar metaphor of the glass filling becomes less relevant – because the vessel itself is redesigned to hold, channel, and multiply gains. Only then can livelihoods progress decisively from survival to resilience, and from resilience to sustained, inclusive prosperity.

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Across the world, no crop insurance program has been able to sustain itself purely on a commercial basis over the long run. The reason is structural: when losses occur, they often affect large groups of farmers simultaneously, leading to payouts that far exceed collected premiums. As a result, crop insurance cannot function like traditional insurance; it becomes, in practice, a quasi-social protection mechanism.

The only durable way to cushion farmers from such shocks is through comprehensive relief and rehabilitation programs—publicly supported interventions that combine timely compensation, investment in resilience (such as irrigation and soil health), and preventive risk reduction measures. These, rather than market-based insurance alone, provide a more realistic and sustainable response to nature's inherent unpredictability.

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Farmers and Consumers in Competition

3

Siraj Hussain and Shyma Jose

3.1. Introduction

Despite myriad challenges, Indian agriculture has demonstrated remarkable resilience by ensuring food security for 1.4 billion people and providing employment to 46.1 percent of the workforce.[1] However, the sector contributed only 16.3 percent to GDP in the triennium ending (TE) 2024–25. Over the past decade (2014–15 to 2024–25), agricultural growth has averaged around 4 percent. India's White Revolution, along with the subsequent expansion of horticulture and fisheries over the last two decades, has strengthened confidence that the country can not only achieve self-sufficiency in food but also produce exportable surpluses in high-value commodities.

Despite the overall success of Indian agriculture, the country continues to rely heavily on imports for key commodities. Edible oil imports account for approximately 55-60 percent of domestic consumption.[2] In the case of pulses, the imports currently account for nearly 10-16 percent of domestic production in recent years. The share had surged to over 35 percent in 2015–16.[3]

The imports have remained high despite sustained government efforts to make India self-sufficient (*Aatmanirbhar*) in the production of edible oils and pulses. For edible oils, the government has been implementing the Centrally Sponsored National Food Security Mission on Oilseeds and Oil Palm (NFSM–OS&OP) since 2018–19. The scheme seeks to enhance the productivity of oilseeds – such as groundnut, soybean, rapeseed & mustard, sunflower, safflower, sesame, niger, linseed, and castor – while also expanding the area under oil palm and tree-borne oilseeds like olive and mahua. In addition, the government has launched a separate mission, the National Mission on Edible Oils (Oil Palm) – NMEO (OP), specifically to promote oil palm cultivation.

Similarly, to boost pulse production, the government has been implementing the National Food Security Mission (NFSM) with twin objectives of expanding the cultivated area and raising productivity through improved seed varieties and modern agricultural practices.

The agricultural sector faces the dual challenge of feeding a rapidly growing population while

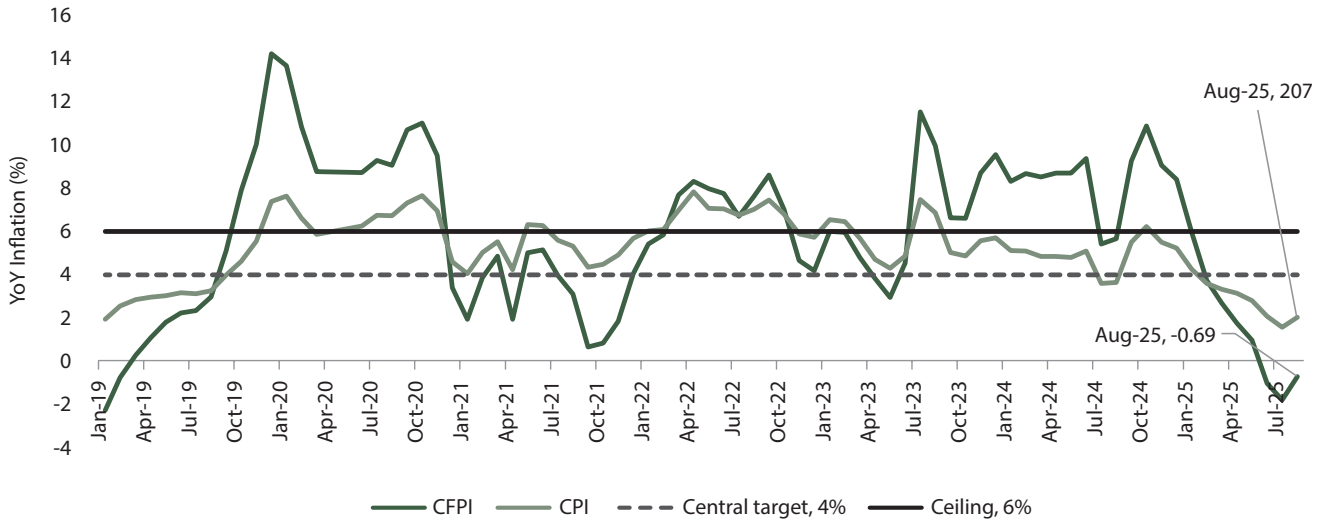

Figure 3.1: Trend of Retail Inflation (CPI) and Food Inflation (CFPI) in Last Five Years

Source: MOSPI

ensuring that food remains affordable for the masses. Food inflation has therefore remained a recurring concern irrespective of the party in power in the Union Government. At times, the government's efforts to keep food prices low have adversely affected the livelihoods of nearly 47 percent of the Indian population that depends on agriculture.[4] As a result, the burden of maintaining low food inflation has frequently been borne by farmers, producers and the work force dependent on agriculture. It has an adverse impact on their livelihoods. Notably, such policy measures reveal an inherent bias in favour of urban consumers within India's food price regime. They effectively amount to a disguised transfer of resources from farmers to consumers.

This chapter examines the implications of the government policies focused on keeping food inflation on the producers, with a focus on four commodities – edible oils, pulses, onions and sugar.

3.2. Food Inflation in India

Food and beverages account for 45.86 percent of the weight, in the consumer price index (CPI). Specifically, food alone constitutes 39.06 percent of the CPI basket in India. This means that out of every ₹ 100 spent by the average Indian, a little more than ₹ 39 is spent on buying just food. This structure of headline inflation differs significantly from that of advanced economies, where food weights are much lower – for instance, 9.3 percent in the UK, 14.1 percent in the US, and 8.5 percent in Germany.[5]

3.2.1 Food Inflation Remains Modest in August 2025

In August 2025, CPI inflation remained moderate at 2.07 percent (Figure 3.1), with food inflation at –0.69 percent. The decline was largely driven by plunging vegetable prices, particularly garlic (–44.45 percent), ginger (–44.25 percent), onion (–39.13 percent), and potato (–36.79 percent). Among pulses, *arhar* (tur dal) inflation fell by –29.35 percent in the same month. Overall, vegetable and pulses inflation stood at –15.9 percent and –14.5 percent, respectively, in August 2025. A surge in pulse imports, combined with bumper harvests in countries such as Australia and Brazil, has pushed down domestic prices. Government interventions through buffer stock releases, along with excess rainfall affecting crop quality, have added to the decline. At the same time, rising imports of cooking oils and lower onion exports are driving prices to multi-year lows.[6]

Figure 3.2 presents the contribution of food and non-food items to CPI inflation (in

percentage terms). Evidently, the cooling of vegetable and pulse prices along with spices played a significant role in lowering overall CPI inflation in August 2025. However, core CPI remained relatively firm at around 4.1 percent.

While low food inflation benefits consumers, its adverse consequences for producers on the supply side are often overlooked. The deflation in vegetable prices reduces the earnings of those engaged in vegetable cultivation. Consequently, it is the vegetable farmers who bear the brunt of declining prices.

The decline in domestic prices of agricultural produce, especially for import-dependent commodities, poses a serious concern for Indian farmers and producers. To contain food inflation, the government often reduces import duties on import-dependent commodities such as edible oils and pulses. The tariff rates for imports are fixed by the government, primarily to ensure sufficient availability of commodities in the domestic market and to keep food inflation low. In the case of both edible oils and pulses, this has been the case.

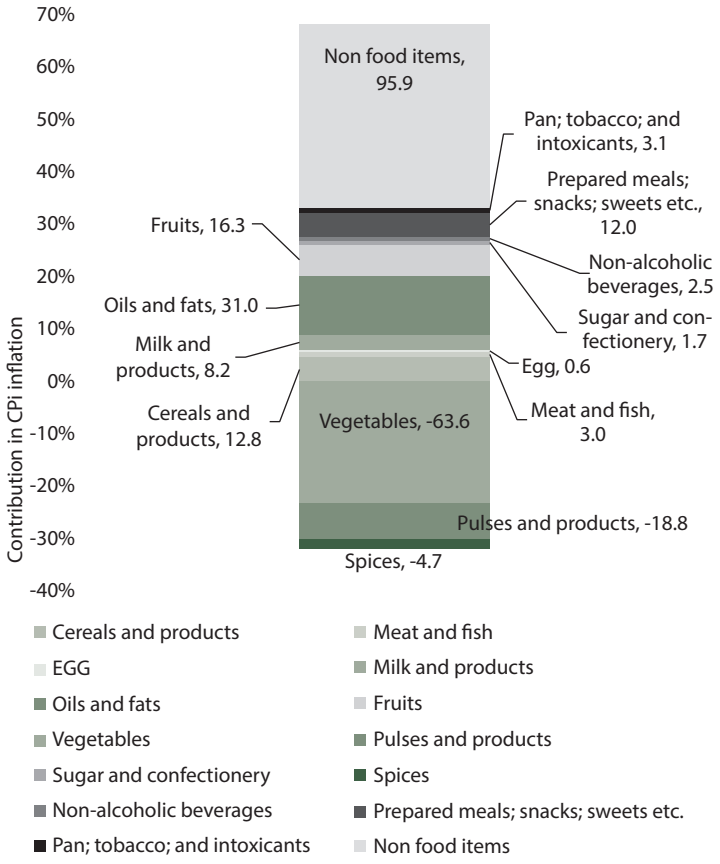

Figure 3.2: Contribution of Food and Non-food Items in Total CPI Inflation, August 2025 (2.07%)

Source: MOSPI

3.3. Edible Oil

Palm oil imports account for approximately 55-60 percent of all edible oils imported into India. The imports are mainly from Malaysia and Indonesia. Soybean oil is 20-25 percent of edible oil imports, mainly from Argentina and Brazil. Sunflower oil is 15-20 percent of total imports, mainly from Russia and Ukraine.

Tables in Annexure 3.1 show the duty imposed on major edible oils which are imported into India.

The duty on crude palm oil was substantially reduced from 44 percent in 2019 to 8.25 percent on 14 October 2021, and to 5.5 percent on 13 February 2022. The slashing of import duty on crude oil shows softening of inflation in Vanaspati and margarine in second half of year 2022 as well as deflation between March 2023 and August 2024. When farmers started complaining about the low-price realisation, the duty was hiked to 27.5 percent on 14 September 2024 (Figure 3.3). However, the fear of inflation in edible oils again persuaded the government to reduce the duty to 16.5 percent on 31 May 2025.

However, the rapeseed oil is the only one for which the duty has been kept high at 38.5 percent for crude oil and 49.5 percent for refined oil despite surging prices of mustard oil in domestic market (Figure 3.4).

Similar to crude palm oil, the effective import duties on crude sunflower oil and crude soybean oil were reduced from 38.5 percent in September 2021 to 5.5 percent in October 2021 (Figure 3.5). Subsequently, both oils were made duty-free, with each granted a tariff-rate quota of 2 million tonnes for the next two financial years FY 2022-23 and FY 2023-24 (effective from 25 May 2022; *Gazette of India*). The primary objective of these measures was to curb rising food inflation and ease the burden on consumers by augmenting the supply of essential cooking oils. However, in September 2024, as realisation of farmers were plunging, the crude import duty on both oils was raised to 27.5 percent, before being reduced again to 16.5 percent in May 2025.

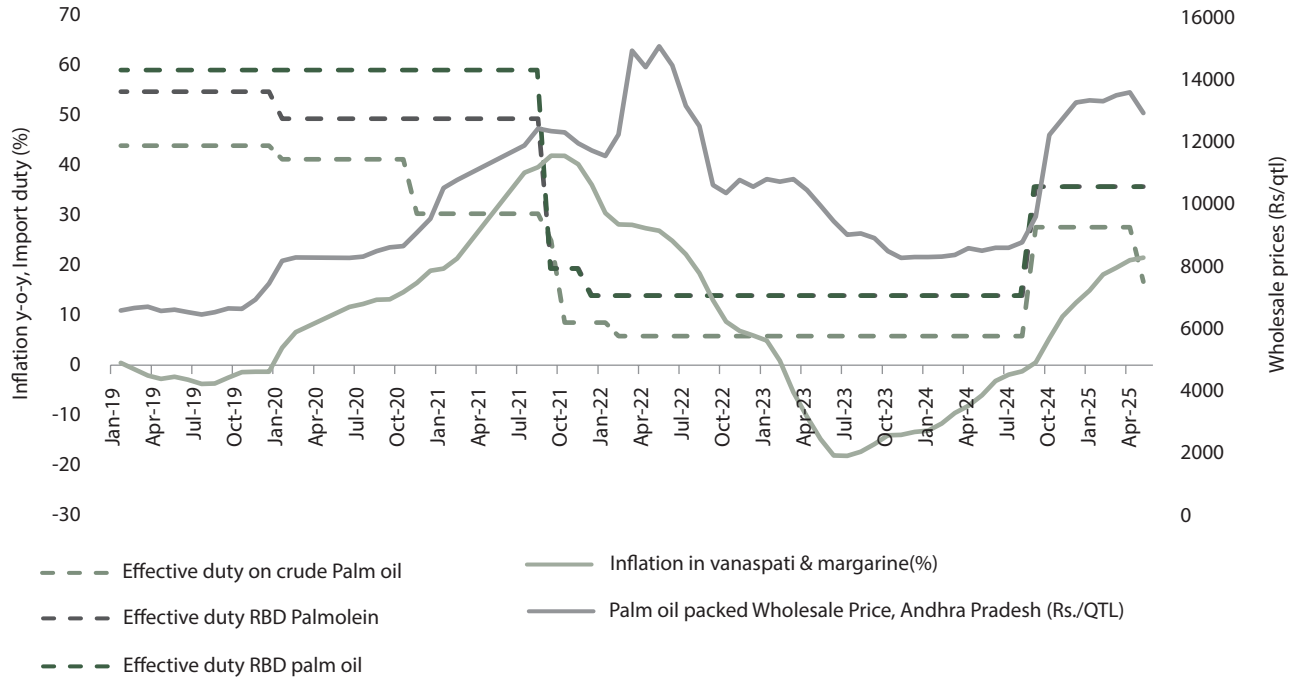

Figure 3.3: Import Duty on Palm Oil and Inflation in Vanaspati (in percentage) along with Wholesale Prices of Palm Oil Packed, Andhra Pradesh (₹/QTL)

Source: MOSPI, SEA data bank, Agmarknet, GoI. Effective duty includes basic custom duty, agri. cess and social welfare cess from SEA databank.

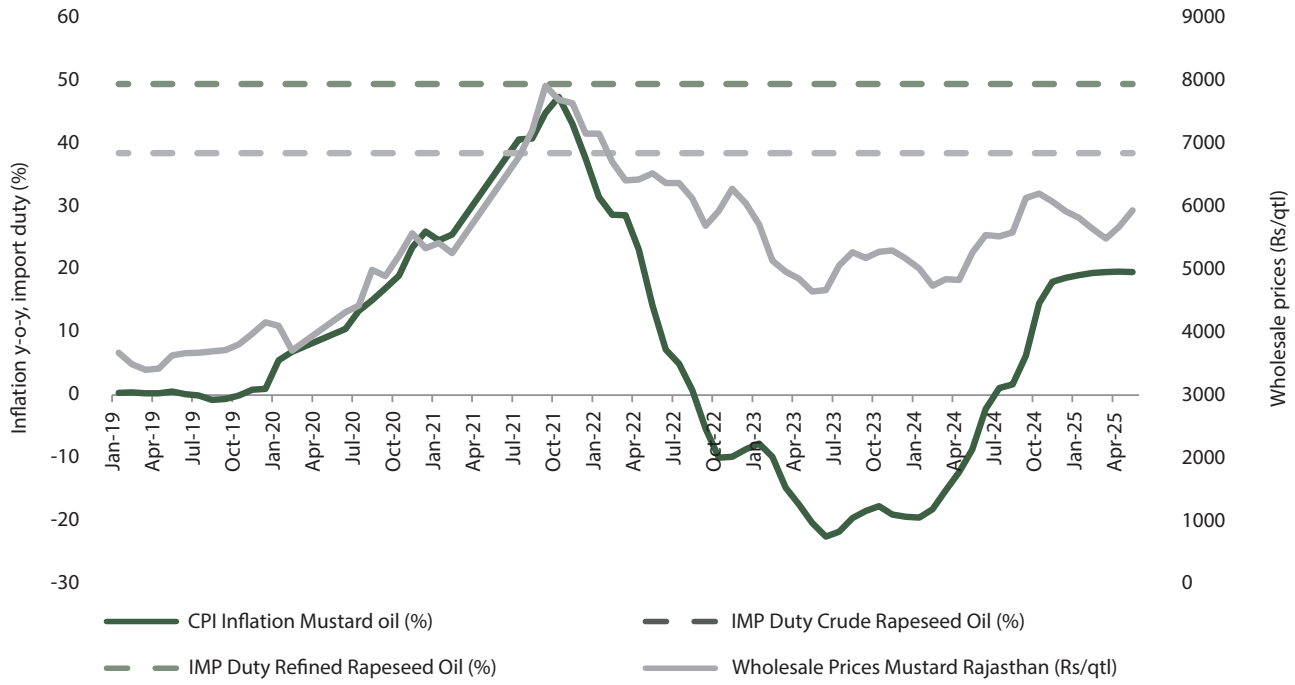

Figure 3.4: Import Duty on Rapeseed and Inflation in Mustard oil (in percentage) along with Wholesale Prices of Mustard, Rajasthan (₹/QTL)

Source: MOSPI, SEA data bank, Agmarknet, GoI. Effective duty includes basic custom duty, agriculture cess and social welfare cess from SEA databank.

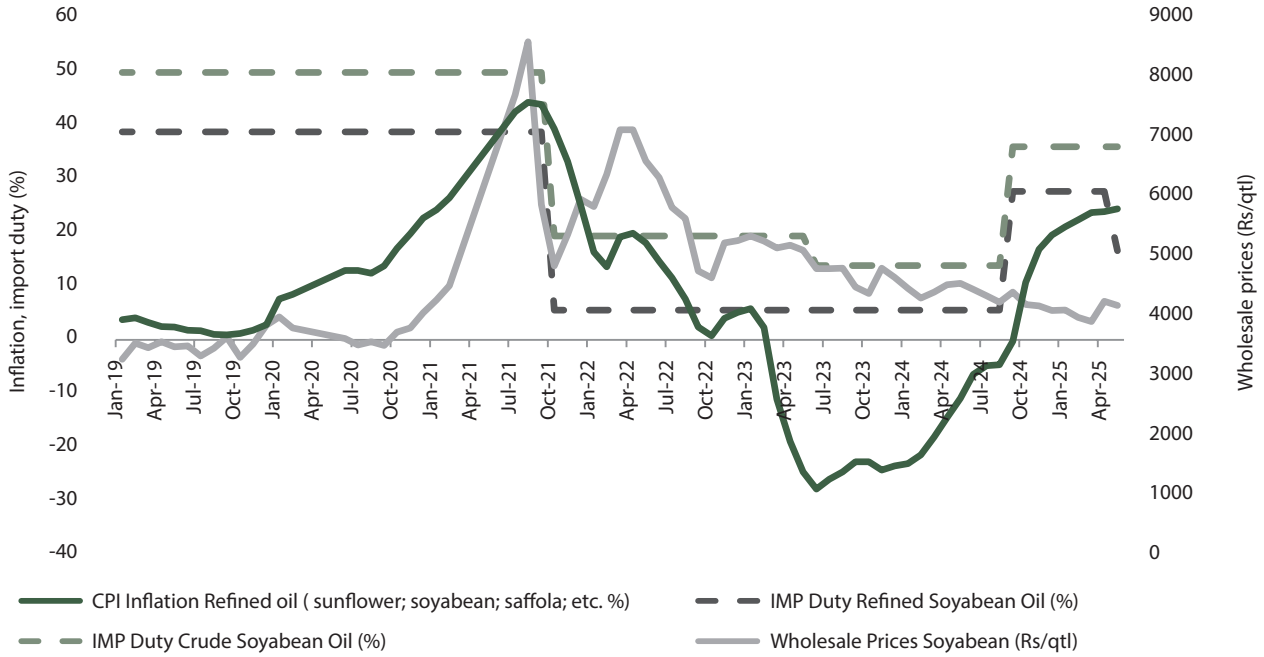

Figure 3.5: Import Duty on Soyabean and Inflation in Refined oil (in percentage) along with Wholesale Prices of Soyabean in Madhya Pradesh (₹/QTL)

Source: MOSPI, SEA data bank, Agmarknet, GoI. Effective duty includes basic custom duty, agri. cess and social welfare cess from SEA databank.

3.4. Pulses

For pulses, India is the largest producer (about 25 percent of global production), consumer (27 percent of world consumption) and importer (14 percent) in the world.[7] Pulses account for about 23 percent of the cultivated area under food grains and contribute around 9-10 percent of the total food grains production in the country. Of all the pulses grown in India, gram (*chana*/ chickpea), a rabi crop, has the largest share in total production (49.5 percent in TE 2023–24), followed by *tur* (14.1 percent). Tur, Urad and Moong are major pulses grown in Kharif while gram, masoor and peas are major crops in rabi.

Given the gap between domestic production and total demand for pulses, the Union Government has been pursuing a policy of low-cost imports to ensure affordability for domestic consumers. Import of pulses ranged from a peak of 25 percent of consumption in 2015-16 to a low of 9 percent in 2022–23. In 2023–24 it increased to about 18 percent. (Figure 3.6). Annexure 3.2 discusses trade policies of major pulses over the last few years.

Tur (Pigeon Pea) is an important pulse with a production of 3.6 million tonnes of tur annually. In TE 2023–24, around 20 percent of the domestic demand for tur were met through imports, mostly from Mozambique, Malawi and Myanmar. When retail price of tur skyrocketed to ₹ 200 per kg in 2016, India signed a Memorandum of Understanding (MoU) with Mozambique for import of 0.2 million tonnes of tur at 10 percent duty, annually for 5 years. In 2021, it was extended for another five years to 2026.

Another MoU with Malawi, on 24 June 2021, provided for annual import of 50,000 tonnes of tur till March 2026. In 2021, a MoU was signed for the import of 100,000 tonnes of tur from Myanmar at 10 percent duty. On March 2023, these imports from Mozambique, Malawi and Myanmar were made duty free and since then they are continuing duty free. At present this arrangement is up to 31 March 2026. As a result, tur prices have fallen below minimum support price (MSP) in the largest producing state of Maharashtra (Figure 3.7).

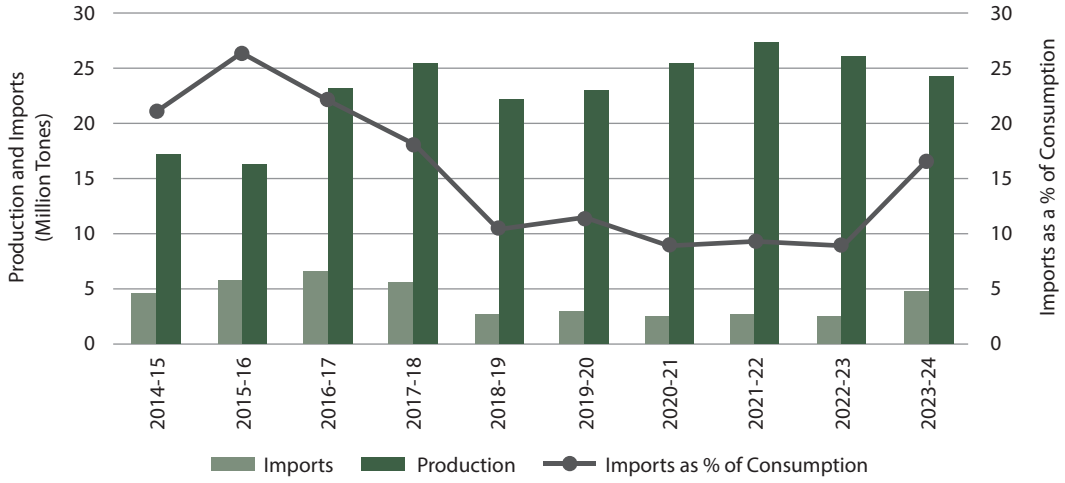

Figure 3.6. Pulses Consumption and Imports[8]

Source: Report on Price Policy for Kharif Crops of 2025–26 Season, CACP

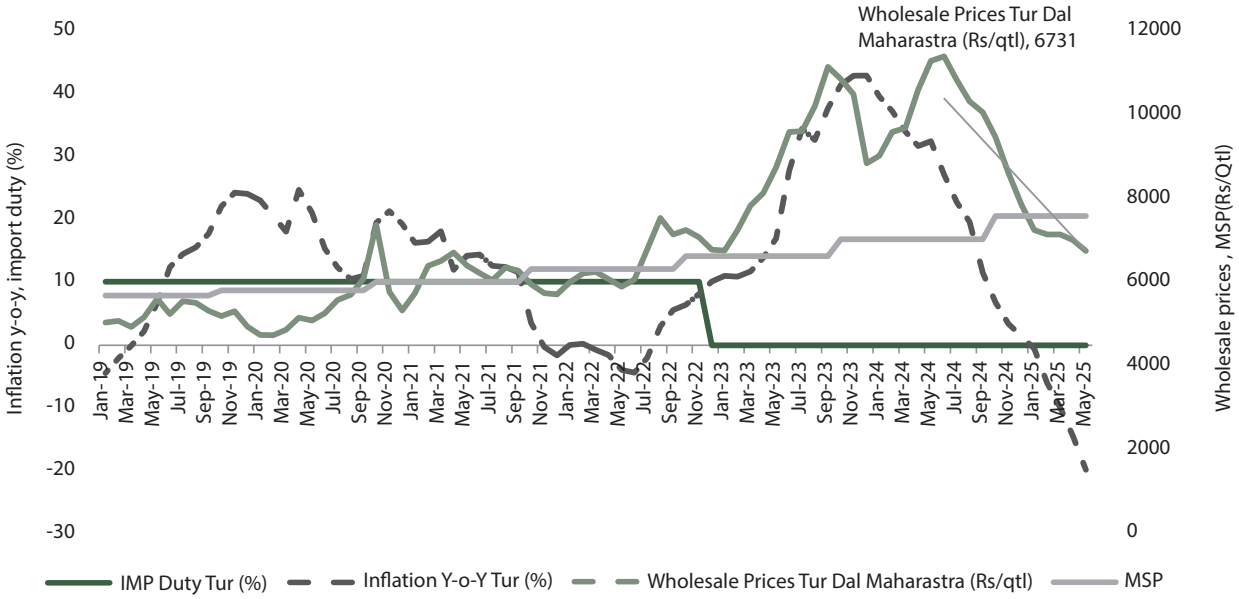

Figure 3.7: Import Duty on Tur and Inflation in Tur (in percentage) along with Wholesale Prices of Tur in Maharashtra (₹/QTL)

Source: MOSPI, SEA data bank, CACP, Agmarknet, GoI. Effective duty includes basic custom duty, agri. cess and social welfare cess from SEA databank.

3.4.1. Import of Yellow Peas

The most controversial pulse import has been that of yellow peas (matar). The overall scale of pulse imports in a year is significantly influenced by yellow pea imports, as yellow peas serve as a substitute for *desi* chana. Over the past decade, pea imports have been consistently higher than gram imports and other pulse imports.

Given that the import prices of yellow peas were lower than domestic chana price, and in order to prevent such imports from destabilising the domestic market for various pulses – particularly gram – the government introduced restrictive import measures such as quantitative restrictions (QR) and minimum import prices (MIP) on yellow peas. These measures were intended to encourage production of gram and other pulses and improve their domestic availability.

Accordingly, on 25 April 2018, yellow pea imports were moved from the 'open' category

to the 'restricted' list (Directorate General of Foreign Trade or DGFT, 2018). Subsequently, the government imposed a quantitative restriction, permitting only 1,50,000 tonnes of imports between 1 April 2019 and 31 March 2020. However, the import duty was reduced to zero in July 2021.

In 2022–23, a 50 percent duty was re-imposed to protect the MSP for domestic farmers, as chana prices in Agricultural Produce Market Committee (APMC) markets were ruling below MSP. On 7 December 2023, however, the government removed all restrictions on yellow pea imports – including import duty, Minimum Import Price (MIP), and port restrictions – in an effort to curb inflationary pressures and in anticipation of lower chickpea production in the country (DGFT, 2023).

The policy was originally scheduled to remain in effect until March 2024. However, the zero-duty import of yellow peas has since been extended and will now continue until March 2026.

In recent months, the Union Agriculture Minister has himself raised concern about cheap import of yellow peas whose landed cost currently (August 2025) is about ₹ 3,351 quintal, which is significantly lower than the MSP and mandi prices of the major pulses such as gram (5650 per quintal), tur (₹ 8,000 per quintal), moong (₹ 8,768 per quintal) and urad (₹ 7,800 per quintal).[9] This has been pulling down the price of several pulses, thus becoming a disincentive to farmers to grow pulses (Figure 3.7 and 3.8).

As a result of import at low duty, India imported 7.3 million tonnes of pulses in 2024-25. This included 2.2 million tonnes of yellow/white peas (largely from Canada and Russia), 1.6 million tonnes of chana (from Australia), 1.2 million tonnes each of arhar or pigeon-pea (from Mozambique, Tanzania, Myanmar, Sudan and Malawi), masoor (from Canada, Australia and United States), and 0.8 million tonnes of urad or black gram (from Myanmar and Brazil).[10]

Taking the cue from cheaper imports and unable to realise even the MSP at the time of peak arrival (in several states), the farmers have reduced area under pulses. Normal area under kharif pulses is 12.96 million hectares. In 2025–26 sown area under kharif pulses, as on 5 September 2025 was 11.64 million hectares.[11] Due to the government's attractive price of ethanol from maize, the farmers have been preferring maize. This year the area under maize is 9.46 million hectares against the normal area of 7.89 million hectares.[12-13] Acreage under maize has increased by 1.03 million hectares than in kharif 2024–25.

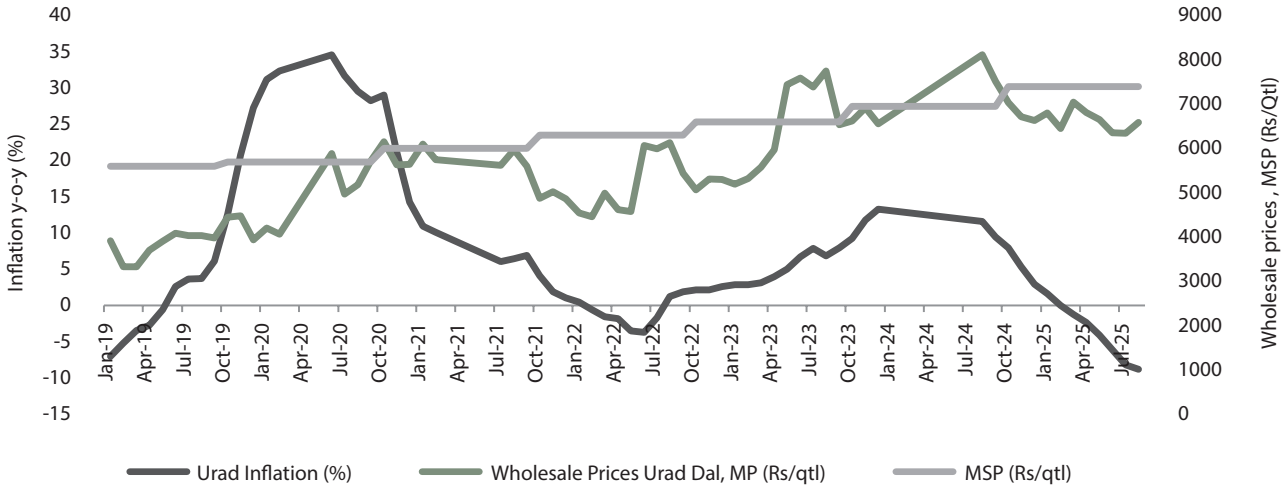

Figure 3.8: Wholesale Prices of Urad in Largest Producing State – Madhya Pradesh

Source: MOSPI, CACP, Agmarknet, GoI.

3.4.2. Boosting Pulse Production to Meet Nutritional Needs

Enhancing the production of pulses is crucial to meeting the protein requirements of India's vulnerable population, many of whom are unable to consume adequate quantities of protein. Studies have shown that plant-based protein contributed a larger share to total protein intake in India compared to Western countries, while animal protein consumption remained low due to limited meat and fish intake.[14]

A key concern with pulses is that they are primarily cultivated in rainfed areas, where productivity remains low compared to cereals (such as wheat and rice) and sugarcane. In addition, the income of farmers engaged in pulse cultivation is highly uncertain, given the absence of assured government procurement. In a welcome move, the Union Budget 2025 announced that the government will procure the entire production of pulses over the next four years, until 2028–29.[15]

Attaining self-sufficiency in pulses necessitates a long-term focus on enhancing agricultural productivity and ensuring steady production growth. This requires infrastructural support such as warehouses, efficient storage facilities, and modern processing units to strengthen supply responses. Moreover, consolidating production at the farmers' level through Farmer Producer Organisations (FPOs) or other collectives can help farmers secure better prices for their produce, while also incentivising the adoption of modern agricultural inputs and technologies.[16] Apart from targeting pulse as a food crop, their by-products also need to be accounted for, to ensure the crop's full value is realised. Processing that minimises waste and converts husk and bran into value-added feed can result in higher realisations.

3.5. Onions

Onions under the "vegetables" sub-category has a weight of 0.64 percent in the CPI basket. It has been subjected to numerous policy changes due to high inflationary pressure. Successive governments have treated onion prices with particular sensitivity ever since the 1998 Delhi assembly elections, when the BJP's defeat was widely attributed to a sharp spike in retail onion prices.

In the last three years, onion production has ranged between 24.21 million tonnes and 31.68 million tonnes. As per the Report of Household Consumption Survey, 2022–23, the domestic consumption of onion annually is 19.36 million tonnes.[17] But due to seasonal variation and other factors, the domestic prices fluctuate, inviting government intervention through various means for several years.[18] Many a times the policy measures adopted are often knee-jerk reactions rather than part of a well-thought-out strategy, which further undermines the price realisation of onion farmers.

In 2015-16, the government set up a Price Stabilisation Fund in the Department of Agriculture, Cooperation and Farmers Welfare. The Small Farmers' Agri-Business Consortium (SFAC), a government organisation, was tasked with purchasing onions at market prices to build a buffer stock. This was released in Delhi market through Mother Dairy booths to calm down the prices.

The Union Government has been using its powers under the Essential Commodities Act to impose stock limits on onions. A stock limit of 10 tonnes on retail traders and 50 tonnes on wholesale traders was imposed across the country on 29 September 2019.[19] On 23 October 2020, the government imposed a stock limit for retailers at just 2 tonnes and wholesalers at 25 tonnes.

Since then, the government has intervened so frequently through changes in onion export policy that traders find it difficult to enter into any long-term export contracts. Onion producers become the victims of sudden changes in export policy as the market prices in APMCs in major producing regions fall whenever restrictions are imposed on export.

We may note the changes in the last two years which reflect the seriousness with which the Union Government deals with the domestic prices of onions. Some of these policy changes along with wholesale prices of onion in Maharashtra are depicted in Figure 3.9.

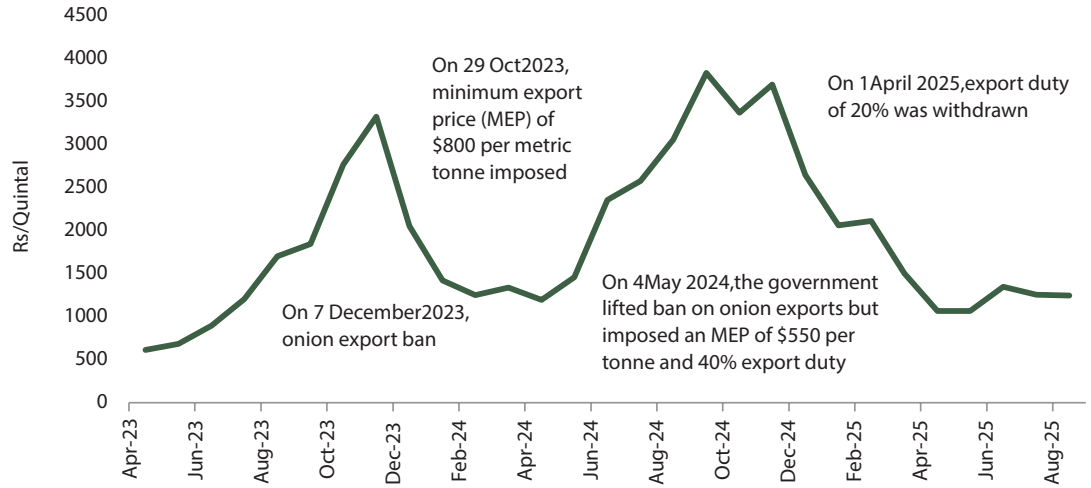

Figure 3.9: Onion Wholesale Prices in Maharashtra and its Trade Policy Over the Years

Source: Agmarknet, GoI.

On 19 August 2023, 40 percent duty was imposed on exports of onion.

On 29 October 2023, a minimum export price of $800 per metric tonne was imposed until 31 December 2023, to discourage exports, to curb surging local prices.

Around 7 December 2023, the all-India daily average price of onion was recorded at ₹ 57.11 per kg which was 97.95 percent higher as compared to a year ago. The government grew concerned about the delayed arrival of the kharif onion crop compounded by difficulties in importing onions from Turkey, Egypt and Iran due to the trade and non-trade restrictions imposed by these countries. A buffer stock of 7 lakh tonnes was also to be built by enabling National Agricultural Cooperative Marketing Federation of India Ltd (Nafed) and National Cooperative Consumers' Federation of India Ltd (NCCF) to purchase onions from the open market.

The price situation was considered so serious that on 7 December 2023, export of onion was banned by the Union Government till 31 March 2024. Its export was only allowed on diplomatic basis.[20]

Even during the 2024 Lok Sabha general elections, onions continued to draw the government's attention as the commodity is widely regarded as a factor capable of influencing voting choices of the electorate. The voting for Lok Sabha elections was to take place from 19 April to 20 May 2024. Phase I voting in several districts of Maharashtra was completed on 19 May 2024.

On 25 April 2024, the Union Government permitted export of 2,000 tonnes of white onions from Gujarat. The notification specified Mundra and Pipava ports of Gujarat and Nhava Sheva/ Jawaharlal Nehru Port Trust (JNPT port) of Mumbai for this export. The onions were to be exported to Middle East and some European countries.[21] Export of other varieties was however not allowed. Maharashtra's onion farmers and traders criticised this decision to allow export of onion from Gujarat only.

On 28 April 2024, the government allowed the export of 99,150 metric tons of onions to six neighbouring countries: Bangladesh, UAE, Bhutan, Bahrain, Mauritius, and Sri Lanka. This time the exports were canalised through National Cooperative Exports Limited (NCEL). NCEL sourced the onions through an e-platform.[22]

On 4 May 2024, still during the Lok Sabha polls, the government lifted the ban on onion exports but imposed Minimum Export Price (MEP) of $550 per tonne and an export duty of 40 percent. Traders and exporters complained that these measures rendered Indian onion

Table 3.1: Trend of Fair and Remunerative Price (FRP) of Sugarcane Over the Years

Season	FRP (₹/quintal)	Recovery Rate (%)
2019–20	275	10
2020–21	285	10
2021–22	290	10
2022–23	305	10.25
2023–24	315	10.25
2024–25	340	10.25
2025–26	355	10.25

Source: CACP, Price Policy of Sugarcane, 2025–26 sugar season

exports uncompetitive in global markets. CNBC reported that China and Pakistan quickly stepped in to fill the gap, capturing a significant chunk of India's traditional markets.[23]

On 13 September 2024, the government removed the 550$ MEP and the export duty was reduced from 40 percent to 20 percent.

With effect from 1 April 2025, the export duty of 20 percent was withdrawn[24] and export of onions has been under no restriction since then.

After every intervention by the government, onion prices in Maharashtra – the largest producing state – declined, adversely affecting the incomes of onion growers.

It is not always the case that onion prices in producing regions remain high, thus inviting government intervention through export restrictions. However, whenever such restrictions are imposed, they consistently reduce farmers' price realisation, leaving growers at a disadvantage. From time to time, onion farmers have faced low prices and also losses due to natural calamities. From 2019–20 to 2023–24, crop insurance was provided under Pradhan Mantri Fasal Bima Yojana (PMFBY) and claims of ₹ 756.10 crore were paid to farmers.[25]

Despite the export restrictions, the onion export during FY 2023–24 was 1.71 million tonnes for a value of 473.72 million $. In FY 2024–25, 1.14 million tonnes of fresh onions were exported for a value of 453.95 US $.[26]

3.6. Sugar

Sugar is one of most regulated sectors in Indian agriculture.[27] It is the only crop where the farmers are mandated by law to receive the price announced by the Union Government (Fair and Remunerative Price, FRP).

On 22 October 2009, the Union Government amended the Sugarcane (Control) Order of 1966, replacing the then-prevailing concept of the Statutory Minimum Price (SMP) of sugarcane with the Fair and Remunerative Price (FRP), applicable from the 2009–10 season onwards. The FRP is linked to a basic rate of sugar recovery from sugarcane. Conceptually a premium was to be made payable to farmers for higher recovery to sugar. This was to incentivise productivity of sugarcane so that the farmers use better farm practices.

The sugar mills, whether privately-owned or government-owned or owned by a co-operative are required to pay FRP. Haryana, Punjab, Uttarakhand, and Uttar Pradesh announced State Advised Price (SAP) of sugarcane which is higher than the FRP. The SAP is however not linked to recovery rate of sugar. Thus, it does not provide any incentive to farmers for higher recovery and efficiency of farm practices.

Due to guaranteed FRP/SAP, the production of sugarcane has increased by 36 percent over last ten years from about 339 million tonnes in TE 2016–17 to 461 million tonnes in TE 2023–24. This increase has come not only from better varieties of sugarcane but also from area expansion and improvement in farm practices. Among major producers, the highest increase in sugarcane production has come from Maharashtra (67.2 percent) followed by Karnataka (48.9 percent) and Uttar Pradesh (47.9 percent).[28]

On 7 June 2018, the Union Government notified Sugar Price (Control) order under the Essential Commodities Act. It enabled the government to fix the MSP of sugar produced by sugar mills.

The Department of Food & Public Distribution (DF&PD) issued a notification on 7 June 2018, directing that no producer of sugar shall sell white/refined sugar at factory gate at a rate below ₹ 29 per kg till further orders. It also specified that no producer of sugar shall hold the quantity of white/refined sugar stock at the end of each month as specified by government every month. It was increased to ₹ 31 per kilogram in

February 2019. Since then, the price has not been increased even though the price realisation of sugar mills has been higher than this.

Due to very high production of sugarcane in 2017–18 and 2018–19, the sugar prices realised by the mills were very low. This caused liquidity crunch in the mills and they delayed the payment of FRP.

The arrears of payment for cane to farmers in 2017–18 were ₹ 11,697 crore. In 2018–19 they came down to ₹ 9,454 crore but in 2019–20 they were even higher at R ₹ 12, 396 crores.

For several years, the sugarcane farmers suffered from these delays in payment of FRP by the sugar mills, particularly in western UP. In some cases, the payments were delayed by more than a year.

To address the problem of arrears of sugarcane dues, the Union Government introduced several measures including financial support to offset sugarcane costs, payment of carrying cost for maintaining buffer stocks, financial incentive for export of sugar, soft loans and MSP for sugar.

The government of Uttar Pradesh also provided financial assistance of ₹ 483.93 crore to sugar mills in the state in sugar season 2017–18 for payment of their sugarcane dues. In sugar season 2018–19 also, soft loan of ₹ 2,864 crore was extended to sugar mills of Uttar Pradesh under soft loan scheme of the State Government for clearance of sugarcane dues of farmers.

These measures have been quite successful in improving the financial situation of sugar mills. The sugarcane price arrears have come down from 16.4 percent in 2019–20 to 3.5 percent in 2023–24.

The most ambitious interventions to support the sugar industry was the introduction of the Ethanol Blending Programme (EFB) under the National Biofuel Policy, 2018. Interest subvention was provided to sugar mills to boost ethanol production and the target of blending of 20 percent petrol with ethanol was advanced from 2030 to 2025–26. This was achieved by an amendment approved in 2022 to the National Policy on Biofuels, 2018.[29]

Ethanol Blending Programme of the Union Government has been a success story. The Public Sector Oil Marketing Companies (OMCs) reached target of 10 percent ethanol blending in petrol in June 2022. Since then, the blending of ethanol has been increasing despite lower contribution of ethanol from sugarcane due to lower production in 2024–25. The blending was 12.06 percent in Ethanol Supply Year ESY (December to November) 2022–23, 14.60 percent in ESY 2023–24. In ESY 2024–25, average blending percentage of 19.05 percent has been achieved as on 31 July 2025.[30]

The EBP has been so successful for sugar industry that the Indian Sugar Mills Association (ISMA) has submitted a roadmap to the government for higher ethanol blending and flexibility for using higher blends. They have proposed the use of E100 (hydrous ethanol).[31]

EBP has surely resulted in improved profitability of sugar mills which has enabled them to pay the sugarcane price to farmers.

So, unlike the farmers of onions, pulses and oilseeds (and several other crops which have been subject of action under the EC Act and suspension of future trading), sugarcane farmers have been the least affected by government policies to check food inflation (barring the delays in receipt of payment of cane supplied in some states). It is therefore no wonder that farmers are growing sugarcane even in drought prone areas (for example Marathwada) and sugar mills have been established there.[32]

3.7. Conclusion

Due to a large population living on subsistence income, the Indian government's policies show a consumer bias.[33] Government-imposed restrictive policies often depress the prices farmers receive for their produce. From our discussion, a similar pattern emerges in edible oils, pulses, and onions, where market prices are frequently pushed down to align with the Minimum Support Price (MSP), leaving farmers vulnerable to losses during the procurement season. This effectively results in a form of 'implicit taxation' on farmers, which could be even more severe in some cases.[34]

The Organisation for Economic Co-operation and Development (OECD) estimates the support provided to producers and consumers of agricultural commodities. These estimates are made for 54 countries including the United

States, Brazil, Canada and Argentina. Its report for 2024 found that Indian producer support estimate (PSE) was negative 11.6 percent. This means that the Indian producers lost about 11.6 percent of their revenues (including from the sale of produce, support payments from the government, and subsidies like fertiliser and electricity), due to government programmes and policies in the year.[35,36] This is primarily due to "price depressing effect" of market distortions including export bans, MEPs and other policy interventions.

Moreover, the frequent use of stock limits under the Essential Commodities Act and changes in export-import policy keep the prices low, thus helping the consumers. But these interventions come at the cost of producers as they realise lower prices for their produce.[37]

The need for protecting consumers from high prices for food items is well established. But the instruments chosen to implement protection measures should not disadvantage the farmers. Inflationary pressures are short term issues given domestic and global supply and demand at a point of time. But production response, if frustrated through distortionary policies, can become a long-term problem.

There are already several schemes of State Governments providing direct income support to women. The targeting of these schemes need to be improved so that the undeserving households are excluded. This should provide a shield to poor households against consumer food inflation.

The farmers producing pulses and oilseeds need to be better compensated as their produce is not procured at the same level as wheat and rice. This is because wheat and rice are distributed under the Public Distribution System (PDS).

PM Kisan provides ₹ 6,000 per year to the eligible landholders. This amount is going to them irrespective of crop they are growing. So, there is no incentive to farmers cultivating pulses and oilseeds. In fact, the incentive for rice is so high that in some states (e.g. Telangana, Chhatisgarh, Odisha) area under rice cultivation has increased.

Pulses are grown in rain-fed regions, and they do not require as much nitrogen as other crops. So, there is a case for extra support targeted at them so that farmers continue to grow these crops.

In addition, large investment must be provided to research and development of pulses and oilseeds so that the yield can increase. Maize has seen such breakthroughs in seed development, through the Indian Council of Agricultural Research (ICAR) and private seed companies.

A similar approach is needed for pulses and oilseeds if *Aatmanirbharta* has to be truly achieved.

Annexure 3.1

Import Duty on Edible Oils

A: Import duty on palm oil

Date	Crude Palm Oil	RBD Palmolein	RBD Palm Oil
01/01/2019	44	55	59.4
01/01/2020	41.25	49.5	59.4
14/10/2021	8.25	19.25	19.25
20/12/2021	8.25	13.75	13.75
13/02/2022	5.5	13.75	13.75
15/06/2023	5.5	13.75	13.75
14/09/2024	27.5	35.75	35.75
31/05/2025	16.5	35.75	35.75

B: Import duty on soybean oil

Date	Crude Soybean Oil	Refined Soybean Oil
01/01/2019	38.5	49.5
01/01/2020	38.5	49.5
14/10/2021	5.5	19.25
20/12/2021	5.5	19.25
13/02/2022	5.5	19.25
15/06/2023	5.5	13.75
14/09/2024	27.5	35.75
31/05/2025	16.5	35.75

C: Import duty on sunflower oil

Date	Crude Sunflower Oil	Refined Sunflower Oil
01/01/2019	38.5	49.5
01/01/2020	38.5	49.5
14/10/2021	5.5	19.25
20/12/2021	5.5	19.25
13/02/2022	5.5	19.25
15/06/2023	5.5	13.75
14/09/2024	27.5	35.75
31/05/2025	16.5	35.75

D: Import duty on rapeseed oil

Date	Crude Rapeseed Oil	Refined Rapeseed Oil
01/01/2019	38.5	49.5
01/01/2020	38.5	49.5
14/10/2021	38.5	49.5
20/12/2021	38.5	49.5
13/02/2022	38.5	49.5
15/06/2023	38.5	49.5
14/09/2024	38.5	49.5
31/05/2025	38.5	49.5

Source: Strategic Environmental Assessment (SEA) data bank

Annexure 3.2

Import Policy of Pulses

Year	Tur (Pigeon Peas, HS Code 7136000)	Import Origin
2016-17	(10% Basic custom duty)	Myanmar and Africa (LDCs) Mozambique, Ethiopia, Djibouti, Sudan, and Tanzania
2020-21	Quantity restriction (4 Lakh tonnes import quota)	
2021-22	Quantity restriction (4 Lakh tonnes import quota) and import under free category from May 2021	
2022-23	No quantity restriction and reduced import duty to zero	
2023-24	Duty free import policy	
2024-25	Duty free import policy	
2025-26	Duty free import policy up to 31st March 2026	

Year	Urad (black matpe HS Code 7133110)	
2020-21	Quantity restriction (4 Lakh tonnes import quota)	Myanmar, Brazil, and Thailand
2021-22	Quantity restriction (4 Lakh tonnes import quota) and import under free category from May 2021	
2022-23	Reduced import duty to zero	
2023-24	Duty free import policy	
2024-25	Duty free import policy	
2025-26	Duty free import policy up to 31st March 2026	
Year	**Masoor (Lentils HS Code 7134000)**	
2018-19	Basic import duty 30%	Canada, Australia, US, Turkey and Russia
2019-20	Basic import duty increased from 30% to 50% - June 2019	
2020-21	Basic import duty reduced to 10% (June-August 2020) February 2021 imposed AIDC 20%	
2021-22	Basic import duty reduced to zero- July 2021 AIDC lowered from 20% to 10% social welfare surcharge of 10% remain unchanged	
2022-23	Existing import duties and extended up to 31st March 2024	
2023-24	Existing import duties and extended up to 31st March 2024	
2024-25	Existing import duties and extended up to 31st March 2025	
2025-26	effective from 8th March 2025 - 10% import duty (5% basic custom duty+5% AIDC)	
Year	**Matar (Yellow Peas HS Code 7131010**	
2017-18	50% Importy duty	Canada, Russia, Turkey, and Ukraine
2019-20	Quantity restriction (1,50,000 tonnes)	
2020-21	Quantity restriction (1,50,000 tonnes)	
2021-22	Import duty zero in July 2021. exemption from 10% agri-infrastructure cess in February 2022	
2022-23	50% Import duty	
2023-24	Import restricted till December 2023. Free import and minimum import price and port restrictions removed from 8 December 2023.	
2024-25	Duty-free import	
2025-26	Duty-free import until 31st March 2026	

Source: Indian Pulses and Grain Association

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Advancing Agroecology in India: Evidence-based Lessons from Practice to Policy

4

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4.1. Introduction

India's agricultural sector stands at a critical crossroads. As the backbone of the nation's food security, it faces significant strain due to climate change, declining soil and water quality, biodiversity loss, and socioeconomic problems. In this context, it is important to examine the key abiotic and biotic factors that strain our food systems, nutritional security and rural livelihoods. Abiotic factors (e.g., climatic variability, drought, flood, heat stress, etc.) and biotic factors (e.g., diseases, insects, pests, weeds, etc.) significantly affect crop yields, while intensifying the challenge of meeting the growing demand for both quantity and quality of food. These factors influence and are influenced by farmers' demand for higher production, as well as climate.

Climate change is experienced as precipitation variation, prolonged droughts, more frequent and severe storms, and rise in temperature with resultant disruption of water availability and threats to food security (Saleem et al. 2024). The thematic report on agriculture in India by the National Mission on Strategic Knowledge for Climate Change or NMSKCC (2016)[2] highlights the vulnerability of agricultural to climate risks. Altered rainfall patterns and rising temperature lead to streamflow disruptions, increased evapotranspiration and a decline in water availability. In coastal regions, seawater intrusion and salinity – exacerbated by excessive groundwater extraction and inefficient irrigation practices – deteriorate water quality for coastal agriculture. The increasing frequency and severity of extreme weather events, pose greater threats to agricultural productivity than mean temperature changes alone. Resilience of the agricultural sector is undermined by heat stress during critical growth periods, coupled with uncertain shifts in pest and disease dynamics that may trigger the emergence of minor pests as significant threats. While modern agricultural practices contribute to an increase in food production, they disrupt the ecological balance, and can erode long-term sustainability. Pressure to produce more, comes at the cost of soil health, water resources and biodiversity. There is an urgent need to bridge the gap between productivity, environmental protection, and economic viability. Agroecology

integrates ecological, social, and economic principles to create resilient farming systems that not only support food security, but also conserve natural resources (Sinclair et al. 2019).

This chapter explores agroecology as a viable, evidence-based alternative that addresses ecological sustainability, social equity, and economic resilience in the Indian rainfed and irrigated farming systems.

4.2. Understanding Agroecology

Since 2004, it is recognised as a transdisciplinary science that bridges natural and social sciences while integrating indigenous knowledge; it includes agrobiotechnology and agroclimatology. It is rooted in ecological principles and enriched by time-tested traditional knowledge systems and practices; it enhances the adaptive capacity of agricultural landscapes while also contributing to climate change mitigation through carbon sequestration (Somashekhar et al. 2024). Today agroecology is considered a critical framework for advancing sustainable agriculture to promote food sovereignty.

Agroecologically-managed ecosystems avoid reliance on external inputs such as, agrochemicals and heavy mechanisation. Instead, they depend on biodiversity and a complementarity of farm components to enhance soil fertility, regulate pests and diseases, and sustain essential ecosystem services. Guided by the United Nations Food and Agriculture Organization's (FAO's) 10 Principles, agroecology emphasises diversity, co-creation, sharing of knowledge, synergies, efficiency, recycling, resilience, human and social values, culture and food traditions, responsible governance, and circular and solidarity economy (FAO 2018). It aims at sustainability, achieved through balancing ecological, social, and economic aspects.

As principles of agroecology consider agriculture a complete, self-regulating agroecosystem, it is possible to have synergies at every level of the system. For example, synergies between grasses and legumes benefit biomass production (Bonaudo et al. 2014). Within this framework, synergies, resilience and diversity emerge as central dimensions, forming the basis for broader sustainability goals.

For centuries, farming communities across the world followed practices that reflected a deep-rooted wisdom of working in harmony with ecological functions, while simultaneously ensuring sustained productivity by maintaining balance with natural processes. Agroecological farming emphasises diversification, mixed cultivation, intercropping, cultivar mixtures, habitat management techniques for crop-associated biodiversity, biological pest control, improvement of soil structure and health, biological nitrogen fixation, and recycling of nutrients, energy, and 'waste' as inputs to the production process (Reijntjes et al. 2014). According to FAO, agroecology also offers a pathway to achieve the Sustainable Development Goals (SDGs). Details of the principles of agroecology and its alignment with the respective SDG are described in Figure 4.1 (Madsen *et al.* 2025).

4.3. Sustainability Challenges to the Agroecosystem under Modern Agriculture

India, one of the world's major agricultural land users, faces numerous challenges in its farming sector. Agriculture primarily depends on the southwest monsoon, with approximately 67 percent of the cultivated area classified as dryland. Furthermore, 87 percent of Indian farmers are small and marginal landholders whose tiny parcels of land support subsistence and are unviable. In an effort to enhance productivity and maximise income from farmland, modern technologies of the Green Revolution are implemented widely, often with the indiscriminate use of external inputs such as chemical fertilisers, pesticides, and irrigation. While the interventions significantly boost food production, they also exert immense pressure on natural resources, disrupting the ecological balance. Modern agriculture driven by industrial, high-input, market-oriented cropping systems, contributes to several environmental challenges as described below.

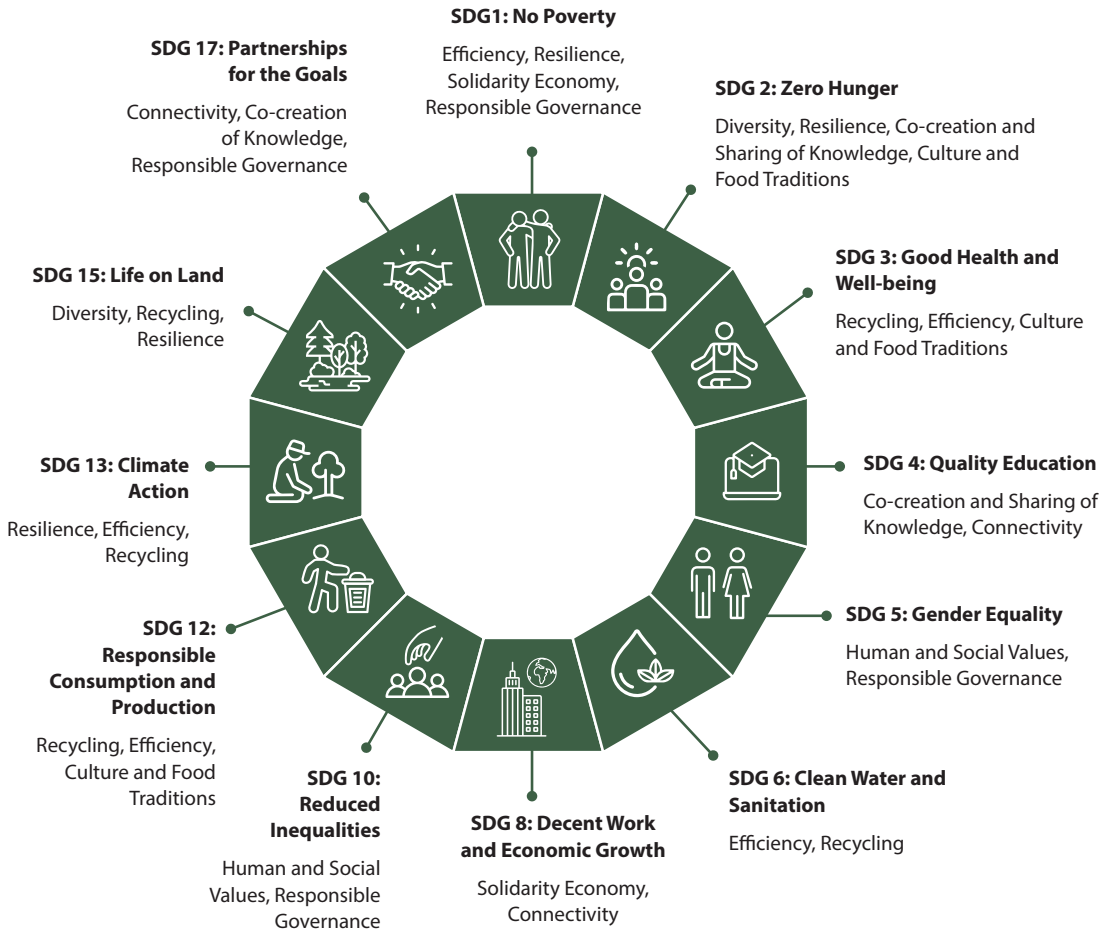


Figure 4.1: Interconnection of SDGs with Agroecology Principles

4.3.1. Climate Extremes

Climate Change is a critical driver of agricultural vulnerability, threatening crop yields, farm livelihoods, and land and ecological stability. A dramatic increase in extreme weather events are noted: from an annual 50+ events in the 1970s to over 400 in 2019; the frequency of heat waves rose by 24 percent (Tolani *et al.* 2024). Global assessments caution that by 2050, without adaptation measures food production would decline by 14 percent. In India around 51 percent of the net sown area under rainfed cultivation, contributes nearly 40 percent of national food production, and is vulnerable to monsoon variability (Saharan *et al.* 2024).

4.3.2. Land Degradation

Market driven cropping systems aim at maximising returns from farmland, hence encourage deforestation, cultivation of hybrid seeds, monocropping, deep tillage, excessive use of agrochemicals and irrigation water. Such practices may yield short term profit, but, in the long run, build increasing pressure on natural resources. This significantly aggravates land degradation by compaction, depleting soil fertility, soil organic carbon, and increasing soil salinisation, which is further accelerated by climate change. In India 29.32 percent of the land is degraded by water erosion (Chowdhury and Saha 2025). Excessive use of fertilisers and irrigation water are important drivers of saline and alkaline soils. In India 6.73 Mha of land is affected by salt related degradation, of which 2.96 Mha of land is saline and 3.77 Mha of land is sodic (Singh 2017). Salt affected degradation is increasing each year resulting in decreased crop productivity, which significantly threatens food security.

4.3.3. Indiscriminate Use of Agrochemicals

Chemical fertilisers, insecticides, fungicides and herbicides (UP, Haryana, and Punjab- top 3 pesticide consumers) used indiscriminately for prolonged periods cause environmental contamination, and seriously threaten the soil ecosystem, biodiversity, and in the long run, animal and human health (Meena et al. 2020). Application of agrochemicals has increased over the last few decades (Gholkar *et al.* 2022), for example, nitrogen, phosphorus, and potassium (NPK) application has increased from 86.7 kg/ha in 2001 to 137.2 kg/ha in 2021 (Pundhir and Kumar 2024). Excessive application of herbicides significantly threatens soil microbial abundance, richness, and evenness, as also various functions of the soil ecosystem (Singh et al. 2020). Insecticides affect the natural cycle of pest management by various natural enemies, and the pollination service of honey bees to various food and non-food crops in the ecosystem.

4.3.4. Pesticide Resistance and Health Hazards

Excessive and repeated use of the same group of pesticides cause undesirable changes in the gene pool fostering resistance that, in turn, demands higher application rates and escalates costs. Moreover, prolonged exposure of agricultural workers during pesticide spraying poses severe health risks, including skin irritation, headaches, respiratory issues, nausea, dizziness, and, in extreme cases, even death (Kashyap et al. 2024). Moreover, the unregulated use of pesticides pollutes soil and water; toxic residues accumulate in food products, which pose serious risks to human and ecosystem health. Accumulation of pesticide residues in the human body over long periods causes several acute to chronic diseases, including cancer, neurological disorders, and endocrine disruptions (Shekhar *et al.* 2024).

4.3.5. Surface and Groundwater Pollution

Contamination of surface and groundwater due to the runoff and leaching of fertilisers, pesticides, and heavy metals such as lead and mercury (Jadon et al. 2022) in lakes, streams, rivers, wells, and borewells is alarming and is of serious concern in many states. In India, approximately 56 percent of districts report nitrate contamination in groundwater exceeding the permissible limit of 45 mg/l, primarily due to the leaching of nitrogenous fertilisers applied in agriculture.[3] Contamination of surface and groundwater with nitrogen, phosphorus, potassium, and heavy metals cause eutrophication, which threatens aquatic ecosystems, wildlife, and human health.

4.3.6. Depletion of Groundwater

Modern agricultural cropping systems are largely industrial and market-driven, designed to maximise income and achieve food self-sufficiency. However, this often compels farmers to cultivate high-yielding, water-intensive crops. Farmers over-extract groundwater, leading to a serious drop in groundwater levels (Kuchimanchi *et al.* 2023) with long term adverse consequences. The choice of high yielding, water-intensive crop varieties by farmers, without considering the climatic conditions, soil type, and availability of water in the ecosystem, puts extra pressure on groundwater extraction, particularly in drylands (Dangar *et al.* 2021). The widespread practice of monoculture, particularly of water-intensive crops such as rice and sugarcane, results in massive water withdrawal from the aquifers. Inefficient flood irrigation use, results in significant water loss through evaporation and runoff, further exacerbating the problem. Moreover, government policies that promote borewells, and free electricity to farmers, encourage excessive and unsustainable groundwater extraction (Fosli *et al.* 2021).

4.3.7. Loss of Agro-biodiversity

Modern agriculture's focus on profit-oriented monoculture farming with few high-yielding hybrid crop varieties, is a primary cause for the loss of agricultural biodiversity. It has replaced a wide variety of traditional, locally adapted crops and varieties. Over-dependence on few species, makes our food system more vulnerable to diseases, pests, and climate extremes. Furthermore, the

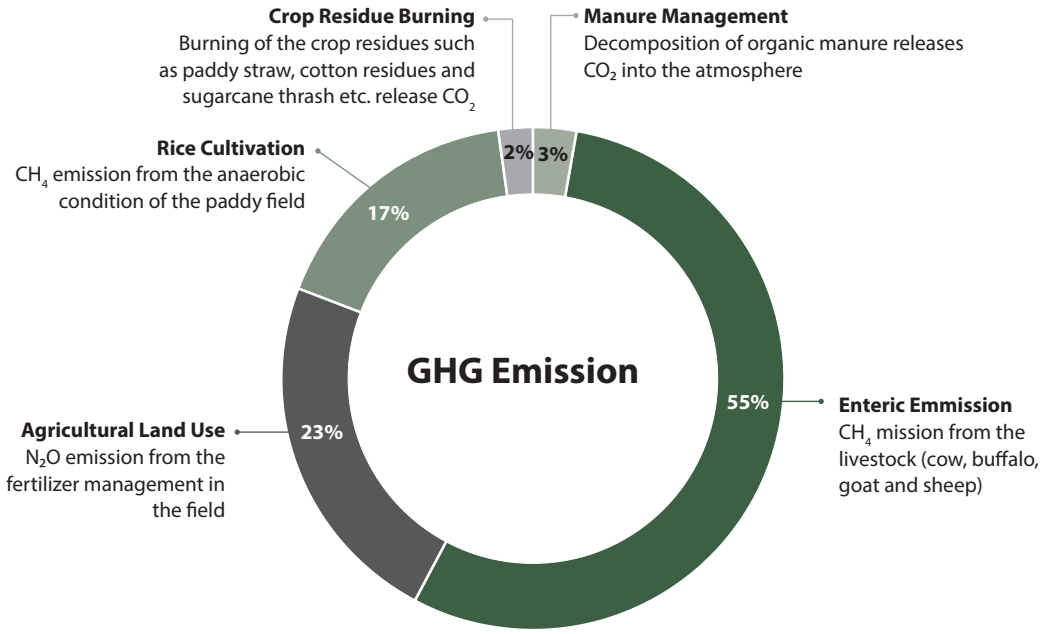


Figure 4.2: GHG Emissions from the Agriculture Sector

intensive use of agrochemicals adversely affects beneficial insects, soil microorganisms (Gholkar *et al.* 2022), and other wildlife, further degrading ecosystems and disrupting natural balances and cycles. At the same time, the push for higher dairy incomes through rearing crossbred cows has led to the extinction of many indigenous livestock breeds. Loss of diversity not only threatens food security but also undermines the resilience of agricultural systems.

4.3.8. Greenhouse Gas Emission

An energy intensive agriculture production system contributes to rising Greenhouse Gas (GHG) emissions. GHG emissions from the agricultural sector contribute 10–12 percent in global GHGs (Chachei 2024), while in India, it accounts for approximately 13.72 percent.[4] Emissions from agricultural fields are mainly enteric, from agricultural land use, rice cultivation, crop residue burning, and manure management.

4.4. Modern Agriculture vs Agroecology

Both agroecology and modern agriculture work towards food production, however, the approach and impact of each varies. This section (Table 4.1) aims to understand the difference between modern agriculture that has been extensively promoted, and agroecological practices.

Table 4.1: Differences between Modern Agriculture and Agroecological Agriculture

Sr. No.	Particulars	Modern Agriculture	Agroecological Agriculture
1.	Concept	Maximises productivity for commercial outreach; uses scientific management methods and technology	Follows the principles of sustainable management of agriculture and food systems, embedded in ecological and social concepts (FAO 2021), optimises overall long-term productivity
2.	Biodiversity	Transforms natural landscapes (forests and grasslands) into large agricultural farms. Excessive use of harmful agrochemicals reduces the plant, animals, and microbial diversity in soil	Temporal variation, spatial diversification of crops with sustainable agricultural practices maintains plant, animals, and microbial diversity at farm level (Patel *et al.* 2022) and ecosystem health

Sr. No.	Particulars	Modern Agriculture	Agroecological Agriculture
3.	Farming system	It is sensitive to climate risks, as a cash crop-oriented monocropping system driven by market demand is adopted (Sharma and Mukhopadhyay 1999)	Ecosystem based diversified farming system (food crops, livestock, poultry) enhances resilience of farm income; reduces the impact of climate risk (Hawes et al. 2021). Input efficient agricultural practices use resources, found within the ecosystem. The farming system works to maintain the ecological balance with sustainable crop production (Somashekar *et al.* 2024)
4.	Input use	Intensive external input agricultural practices followed: use of hybrid and transgenic seed, excess use of agrochemicals, fuel for heavy machinery to maximise profit. Over dependence on agrochemicals for nutrient, insect, pest and weed management (Mathikere and Kundlas 2024)	Use of compost, various organic formulations, crop residues green manuring, biofertilisers, and legumes in cropping sequence to supply the plant nutrient. Bio-pesticides, trap crops and crop rotation are alternatives used in management of pests and diseases (Wezel *et al*. 2020)
5.	Water Use	Dependency and over exploitation of groundwater is high in water intensive modern agriculture that is market driven	Use of in situ moisture through nature aligned practices- mulching, broad bed furrow; the judicious use planning of available water (Altieri 1999)
6.	Energy use	Increasingly relies on heavy machinery for various agricultural operations, making it energy intensive and harmful to agriecosystems	Follows conservation agricultural practices - zero/ minimum tillage, recycling of residues, that are energy efficient and beneficial to agriecosystem (Somashekar *et al*. 2024)
7.	Soil Health	Monocropping and excess use of agrochemicals cause decline in soil fertility and productivity	Crop diversification, adoption of sustainable land management practices enhances soil health and carbon sequestration (Hawes et al. 2021)
8.	Environmental Impact	Modern agriculture excels in food production, at the cost of environmental degradation (Foley et al. 2011). It significantly contributes to GHG emissions. Excessive use of chemicals contributes to groundwater contamination and eutrophication	Agroecological practices boost production by integrating ecological and social dimensions of sustainability to enhance soil health and regenerate ecosystem services (Altieri 1999). Agroecological practices minimise GHG emissions, and promotes soil carbon sequestration (Hawes *et al*. 2021). Reduces reliance on external off-farm non-renewable resources; uses bio-chemicals to control pests and diseases and lowers the risk of contamination of natural resources (Wezel et al. 2020). Regenerative in nature

4.5. Some Adaptive Practices of Agroecology

To address emerging challenges and ensure a sustainable future, there is an urgent need to mainstream agroecological practices into national and international policies and programmes. Agroecological practices create a compatible balance between productivity and ecological stability. There are many good practices, we discuss a few in this section.

4.5.1. Agroforestry

This crop diversification practice integrates trees with crops, horticulture, or pastures to enhance the symbiotic and complementary relationships among different components, thereby creating a diversified and productive ecosystem. Tall trees not only supply timber but also serve as physical barriers against strong winds and

rising temperatures, while providing shade for shade-loving crops and livestock. Cultivation of different types of tree and crop species, enhances soil fertility, microbial activities, protects the top soil from erosion, and enhances carbon sequestration (Bhardwaj *et al.* 2024).

4.5.2. Crop Rotation

Sequential cultivation of different varieties of crops on the same piece of land, enhances soil fertility, utilises nutrients from different layers of soil, maintains microbial biodiversity, breaks down the life cycles of several insect, pest and diseases due to lack of host specific crops in the field and controls weed infestation (Hawes et al. 2021). A heterogeneous cropping system has a better production efficiency, yield stability, and resilience to environmental stresses. Cultivation of cereal crops followed by legume crops shows up to 30 percent greater biomass production due to nitrogen fixing capacity (Iannetta *et al.* 2016).

4.5.3. Mix and Inter Cropping

In inter cropping, two or more crops are cultivated simultaneously on the same piece of land in definite row patterns. Mixed cropping is the unstructured growing of two or more crops simultaneously. Crop diversity creates synergistic effects, providing complementary use of environmental resources, in contrast to single crops. Studies reveal the increased nitrogen uptake by cereals cultivated in a mixture with legumes that fix nitrogen (Pużyńska *et al.* 2021). Inter and mixed cropping systems reduce the risk of crop failure due to climate extremes.

4.5.4. Cover Cropping

Cover crop is an important agronomic measure to prevent soil erosion. Cultivation of cover crops over the entire soil surface prevents the direct impact of rain drops, which greatly reduces detachment of soil particles and averts sheet erosion (Huang et al. 2025). Cover cropping is done during off-seasons, or, between the established perennial plants to protect the soil from direct exposure to rainfall and harsh conditions. It minimises soil erosion and evaporation losses; enhances water infiltration, boosts soil fertility, maintains soil health, enhances biological pest control, and fosters beneficial insects and pollinators (Vikas and Ranjan 2024; Altieri 2000).

4.5.5. Organic Mulching

Mulching is an important agricultural practice where soil surfaces are completely covered with leaves and crop residues. Mulching enhances soil structure, preserves moisture, regulates temperature, reduces erosion, and avoids nutrient loss and salinity formation. Decomposed organic mulch enhances the growth of soil microorganisms which improve soil fertility and plant growth. Mulching significantly increases crop yield, water use efficiency, reduces weed infestation and nitrogen use efficiency by 60 percent as compared to non-mulched crop (Qin *et al.* 2015).

4.5.6. Nutrient Management through Organic Sources

Nutrient management through organic sources, supply plant nutrients by recycling farm residues such as compost, vermicompost, edible and non-edible oil cakes, blood meal, fish meal etc. Optimising the judicious use of farm organic resources and minimising losses are the key goals of nutrient management through organic sources. Organic material enhances the soil's physical, chemical and biological properties, and ultimately soil health. (Sun *et al.* 2022). Recycling farm organic residues provides farmers with an efficient and sustainable means of reducing input costs while supplying valuable nutrients to plants (FAO 2025). It also helps curb the practice of crop residue burning.

4.5.7. Water Conservation and Use Management

Agriculture is a major consumer of water globally. India uses about 90 percent of groundwater in agriculture (Patel *et al.*, 2022). Moisture conservation practices such as contour farming, bunding, terracing, broad bed furrow, conservation tillage, retain rain water in-situ, increases infiltration and reduces runoff. In semi-arid regions, these practices increase moisture availability during dry spells which improves

crop performance. Micro irrigation reduces both leaching and evaporation losses (Jarwar 2019) and minimises wastage (Rastogi, *et al.*, 2024). Drip irrigation saves up to 60 percent water. Sprinkler irrigation simulates rainfall and is primarily used on uneven topography where other systems are not suitable.

4.5.8. Ecofriendly Pest and Disease Management

Environmentally-friendly practices for the management of pests and diseases include physical, mechanical, cultural, and biological measures. Treatments are required at the initial growth stage of the crop, such as adjusting the sowing date, crop rotation, trap crops, and seed treatment etc. At the later growth stages of crops, botanical and entomopathogenic pesticides can serve to control pests and diseases. Trap crops, light traps, and pheromone traps are used to monitor and control pests and diseases. Eco-friendly practices promote beneficial insects and help maintain agroecological balance in fields, while reducing dependency on synthetic pesticides (Somashekar *et al.* 2024).

4.5.9. Integrated Farming System

This is a holistic agricultural approach that synergises diverse farming enterprises within a unified ecosystem (Archer *et al.* 2018). The diversified nature of Integrated Framing System (IFS) ensures an efficient nutrient recycling that utilises decomposed crop residues as source nutrients, which reduces the requirement for synthetic fertilisers. It also contributes to increased carbon sequestration. By integrating crops, livestock, poultry, aquaculture, and agroforestry, IFS optimises resource utilisation, enhances productivity, supports sustainable livelihood, and fosters resilience to tackle the complex challenges like food security and climate change. The holistic approach taken by IFS makes it more capable of meeting the increasing food demand under climate uncertainties, as it increases productivity, enhances sustainability and overall resilience of the ecosystem (Atapattu *et al.* 2025).

4.5.10. Livestock Integration

Rearing of cattle, goats, sheep, and poultry, are integral to IFS. Livestock is an important renewable, cost effective, farm-based energy source for small and medium farmers. Livestock contributes to milk and meat for household consumption, besides sale, and is a valuable asset for diversified resilient farm income. Animal manure replenishes soil fertility, which boost microbial activities. IFS functions as a closed-loop system, where crop residues feed livestock and livestock manure returns nutrients to the soil and crops, thereby reducing the dependency on external inputs (Paramesh *et al.* 2021) and maintains sustainable crop production along with ecological balance (Kumar et al. 2018).

4.5.11. Traditional and Local Knowledge Integration

Traditional Knowledge (TK) is often deeply rooted in customs, environmental insights, and community practices. It has enabled indigenous and rural communities through generations, to cultivate land in balance with their ecosystems (Adefila *et al.* 2024). However, rather than viewing these approaches as exclusive, integrating TK with modern agricultural approaches can offer a more integrated path to attain sustainable development in the agriculture sector (Sharma *et al.* 2020).

An integration framework emphasises the importance of understanding how traditional agricultural knowledge and practices (traditional pest control, crop diversity, soil management), can complement modern practices like precision agriculture and biotechnology, to achieve more sustainable outcomes.

4.5.12. Case Studies

Two case studies of agroecological interventions implemented by Watershed Organisation Trust (WOTR) in Maharashtra are given below (Figure 4.3 and 4.4). They capture farmers' experiences, along with the impacts, outcomes, and challenges encountered in implementing various agroecological practices. These practices are also scalable in similar geography in different states.

Project Context

- **Objective:** Implement and document soil protection, rehabilitation, and fertility management measures to agreed standards
- **Target Groups:** Small-scale farmers (with focus on women), experts, decision-makers, private sector, and service providers
- **Location:** 3 districts of Maharashtra - Dhule (Sakri), Ahilyanagar (Parner), and Jalna (Bhokardan). Participatory watershed development programme was implemented in project villages
- **Coverage:** 20 villages, 5,169 households, 23,771 people, totaling 18,053 hectares

Project Components

- Soil conservation and water harvesting structures
- Adaptive sustainable agriculture
- Integrated water resource management
- Water budgeting
- Integrated irrigation water management
- Value chain and post-harvest development
- Agro Service Centres
- Capacity building of Community-based Organizations (CBOs) and communities

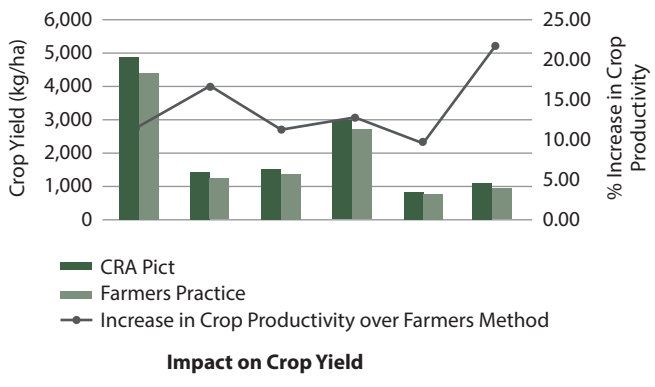
Intervention

- Intervention on Adaptive Sustainable Agriculture
- As part of the adaptive sustainable agriculture component, 80 farmers in each block (Sakn, Bhokardan, and Parner) adopted improved cropping systems and sustainable practices
- Cropping Systems Adopted: Parner Block (Green Gram, Rabi, Sorghum), Bhokardan Block (Soyabean, Wheat), Sakri Block (Paddy, Chickpea)
- Soil test based fertilizer application through various sources
- Use of city vermicompost, waste decomposer and compost
- Application of green manure, organic mulching
- Seed treatment with bio-fertilizers
- Use of bio-pesticides and organic formulations such as Jeevamrut and Amrutpani, Dashparni Ark and NSKE
- Soil organic carbon increased by 8.41%, 16.14%, and 15.21% in Sakri, Bhokardan, and Parner blocks, respectively, as compared to the baseline

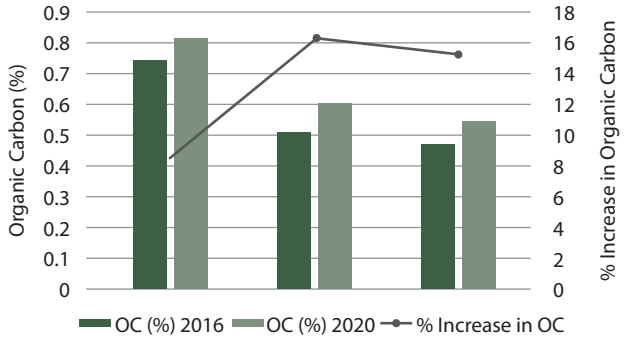
Key Learnings

- Adoption of diversified cropping systems with locally adaptable practices contributes significantly to soil fertility improvement
- Organic amendments (vermicompost, green manures, and biofertilizers) enhance soil organic carbon and reduce dependency on chemical inputs
- Integrated approaches combining soil, water, and crop management strengthens resilience against climatic variability
- Capacity building of smallholders, especially women farmers, accelerates adoption and ensures sustainability of interventions

Impact



Impact on Crop Yield



Impact on Soil Organic Carbon (%)

Figure 4.3: Case Study – Soil Protection and Rehabilitation for Food Security in Jalna, Dhule and Ahilyanagar Districts of Maharashtra, India

Project Context

- **Project:** JIVA programme NABARD, India
- **Goal:** Agro-ecological transformation in watershed & tribal development projects
- **Approach:** Farmer-led extension to drive behavioural change
- **Principle:** Natural farming - balancing ecology and economy
- **Focus:** Leverage existing natural & social capital; progression from farmer → farm → landscape

Project Area

- **Implementing Agency:** Watershed Organisation Trust (WOTR)
- **Site:** Kumbharwadi, Sangamner, Ahilyanagar
- **Area & Geography:** 909.84 ha, undulating and hilly - prone to soil erosion & moisture stress
- **Rainfall:** ~400 mm/year
- **Challenges:** Frequent droughts and high climatic variability
- **Participatory watershed development programme was implemented in project villages**

Methodology

- **Profiling:** Detailed landscape & household profiling via participatory mapping and surveys
- **Mapping Areas:** Land use, water resources, households, cropping systems, livestock, cluster demarcation
- **Community Involvement:** Village Development Committees, farmer groups, youth, and women actively engaged
- **Outcomes:** Identified farmer groups for natural farming activities; established seed bank & bio-resource center

Outcomes

- Promoted soil health management practices through green manuring, composting, organic formulations, and bio-fertilizers
- 80 farmers successfully adopted natural farming on 20 hectares of land
- Up to 20% increase in crop productivity and 15% reduction in cultivation of cost
- Women's groups manage the bio-resource center and seed bank
- Increased participation of women and youth in farming and decision-making
- Crop diversification with indigenous seeds, integrated farming, and livestock ensure year-round nutrition and stable income

Lessons learned

- Farmer-led capacity building drives lasting behavioural change
- Local bio-resource centers are key to scaling natural farming
- Women's participation is vital for sustaining agroecological practices
- Integrating crops, livestock, and homestead farming boosts ecological resilience and household nutrition

Challenges

- Limited access to quality inputs and indigenous crop varieties
- Agroecological practices (intercropping, mixed cropping, weed management) are labor-intensive
- Perception of lower production and income
- Low awareness of ecological and economic benefits of natural farming
- Inadequate government policy and weak grassroots extension support
- Poor market linkages and lack of premium pricing for naturally grown produce
- Limited knowledge of PGS and organic certification among farmers, FPCs, and village institutions

Figure 4.4: Case Study – Agroecological Transformation in Kumbharwadi Watershed, Maharashtra, India

4.6. Constraints in the Adoption of Agroecology

Despite the potential advantages and benefits of agroecological practices, their promotion and implementation continue to face several hurdles. Although these practices offer clear benefits, encouraging farmers to transition away from conventional, input-intensive agriculture presents distinct limitations. Figure 4.5 outlines some of the key challenges to implementing sustainable practices.

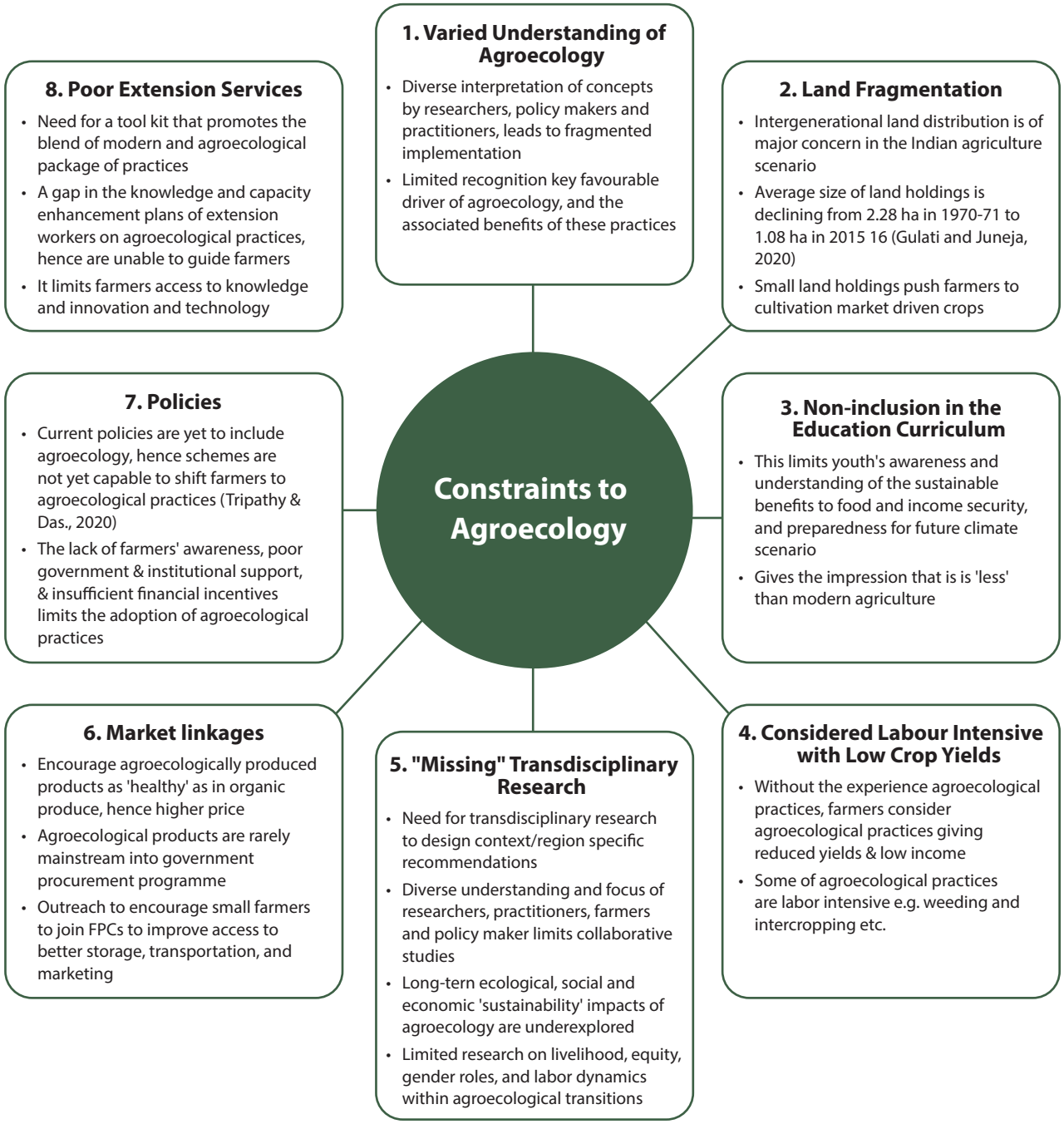


Figure 4.5: Constraints in Adopting Agroecology

4.7. Agroecology and Future Climate Scenarios

Extreme climate events are making agriculture increasingly unviable, both ecologically and economically. In this context, agroecological practices provide holistic pathways to reduce vulnerability and enhance resilience (Bisht *et al.* 2022). The following are some strategic points for long-term sustainability of an agroecosystem.

4.7.1. Capacity Building

Strengthening village-level institutions enables the community to better understand agroecology and integrate appropriate indigenous knowledge and practices. Agroecological practices can be effectively promoted and upscaled through Farmer Field Schools (FFSs) and Farmer Producer Companies (FPCs).

4.7.2. Engagement of Youth and Women

Women are intensely engaged in agricultural activities and are aware of the importance of diversified farming for household food security (Gupta *et al.* 2020). When capacitated, women as agroecological entrepreneurs adopt the appropriate practices to improve both productivity and ecosystem services. Youth and women in leadership and decision-making are good drivers of future sustainability (Rana *et al.* 2024).

4.7.3. Landscape Approach

When implemented on individual farms, agroecological practices cannot achieve the expected benefits. In contrast, adopting a landscape-level approach over an extended period generates broader and more sustained gains across multiple ecosystem services. Landscape approaches bring all stakeholders i.e. community, implementers, researchers, and government, to a common understanding of the problems and collective action towards the goal. Long-term sustainability is essential to restore degraded lands and health of the ecosystem under changing climate scenarios (Kumar *et al.* 2024a).

4.7.4. Region-specific Practices

For India's diverse agroecological and agroclimatic conditions, including various soil types and socio-cultural contexts, region-specific recommendations are necessary to build sustainability and draw benefits from nature (Kumar *et al.* 2024b). Transdisciplinary research integrates knowledge from science, society, and traditional wisdom; it generates context-specific recommendations for policy and programmes. Farmers as partners in the process, bring ground reality into actionable recommendations that will align with local conditions, social equity, economic viability, and environmental stability.

4.7.5. Technology and Traditional Knowledge Integration

Synergy of indigenous knowledge with modern technology will significantly enhance the community's resilience and adaptation, utilising a scientifically sound and culturally grounded systems (Son *et al.* 2021). Integrating climate data, projection models, and remote sensing with indigenous practices and scientific approaches enables identification of vulnerable areas and the designing of context-specific resilience strategies. Precision farming, remote sensing, soil health testing, weather forecasting, and digital advisory systems, will enhance accuracy and resource use efficiency.

4.8. Policy Landscape

The growing impacts of climate change demand better alignment of policies to build resilience. India's first comprehensive agricultural policy, the National Agriculture Policy (2000)[5] set goals of productivity, sustainability, food security, and income enhancement. It promoted sustainable resource use, diversification, and farmer empowerment through cooperatives, SHGs, and traditional knowledge. Subsequent policies, like the National Policy for Farmers (2007)[6] emphasised livelihood security, soil health, and climate adaptation, while the Doubling Farmer's Income strategy (2016 onward) refined priorities.

The National Action Plan on Climate Change (NAPCC) 2008 (Government of India 2008) created a broader framework to mitigate climate impacts while advancing sustainable development. Against this backdrop, India has launched several initiatives under eight missions; these either explicitly support agroecology or provide opportunities for its promotion. The following section reviews key policies and programmes with direct and indirect links to agroecology and suggests pathways for deeper integration.

4.8.1. National Mission for Sustainable Agriculture (NMSA)

This is one of the eight missions outlined under NAPCC. NMSA architecture is designed by converging, consolidating and subsuming all ongoing as well as newly proposed activities/ programmes related to sustainable agriculture with a special emphasis on and water conservation, water use efficiency, soil health management and rainfed area development. Its focus is to infuse the judicious utilisation of resources of commons through community-based approaches. NMSA has different sub-missions:

1. Rainfed Area Development promotes integrated farming system, using a watershed-plus approach, and aligns agroecological principles of diversity, recycling, synergies, resource efficiency and resilience.

2. Soil Health Management, Climate Change and Sustainable Agriculture-monitoring, Modeling and Networking, and Sub-mission on Agroforestry supports diversity, human and social values; encourages tree plantation in complementary and integrated manner with crops and livestock to improve productivity, employment opportunities, and income generation.

3. Farm Water Management emphasises on water-use efficiency. In practice however, unregulated farm pond construction in rainfed areas has often led to groundwater over-extraction, benefiting a few. Moreover, plastic-lined ponds, mulching, and extensive drip/sprinkler systems has created a trend of plasticulture. NMSA must address these concerns to mitigate the negative impacts of farm ponds and excessive plastic use.

4.8.2. National Mission on Natural Farming (NMNF)

Approved by the Union Cabinet of India in December 2022, with an outlay of around ₹2,500 crore for 2022–23 to 2025–26, the objective of NMNF is to promote chemical-free, eco-friendly farming practices based on traditional knowledge, aligned with the broader goals of sustainable agriculture and climate resilience. It has strong alignment with agroecology, is ambitions and is a 'much-needed' mission. However, farmers are hesitant to shift from chemical-intensive farming because of the concern of lower yields.

4.8.3. Pradhan Mantri Krishi Sinchayee Yojana-Watershed Development Program (PMKSY-WSD)

This is an umbrella program for watershed development, similar to the Integrated Watershed Management Program. It aims to enhance access to irrigation through conservation infrastructure, increasing assured irrigated area, and improving water use efficiency through micro irrigation. The program has a direct synergy with agroecology. It increases resilience of the community by rejuvenating the water table in rainfed regions, partly supports recycling through composting and livestock activities, revives watersheds for accelerated carbon recycling, and most importantly promotes biodiversity through afforestation. To enhance its compliance with agroecology, adoption of demand side water management through community crop-water budgeting practices is required. Caution is required on the adoption of water-intensive cropping and monoculture practices, which contradicts 'diversity' and may threaten resource balance.

4.8.4. Project on Climate Resilient Agriculture (PoCRA)

Launched in 2018 by the Government of Maharashtra with World Bank support (₹4,000 crore; GoM: 30 percent, World Bank: 70 percent), PoCRA covers 5,142 villages across 15

districts in Marathwada, Vidarbha, and Jalgaon. It aims to strengthen the adaptive, absorptive, and transformative capacity of smallholder farmers against climate change (Kale and Kulkarni 2022). Key strengths of the project include the scientific selection of villages using a climate sensitivity index, formation of Village Climate Resilient Agriculture Management Committees (VCRMCs), promotion of FPCs, Krushi Tais (women mobilisers), FFSs, soil health and water management practices, integrated farming, and carbon sequestration. Critical areas prioritised are: community-level resilience alongside individual asset creation (ponds, wells, and pumps) to ensure long-term sustainability (Kale and Kulkarni 2022); implementation of crop-water budgets; and caution against sugarcane promotion in water-scarce areas.

India's upcoming overarching Agriculture Policy 2025[7]. It is expected to embrace a sustainability approach and has many components that blend modern agriculture with agroecology, e.g., focus on increase in crop productivity and farmer's income, at lower cultivation costs. It is expected to promote diversification, boost infrastructure, technology and climate resilient nature friendly agricultural practices that will enhance adaptation and resilience to climate change. The forthcoming policy thus highlights the opportunity that agroecology, when combined with technological integration, offers for advancing India's Nationally Determined Contribution (NDC) commitments.

4.9. Way Forward with the Aim of Sustainability: A Science-Policy-Practice Integration

4.9.1. Realignment of Policy and Programmes

Ensuring the sustainability of our food systems amid climate uncertainties requires agroecology to feature clearly in the national and state missions as well as their implementation roadmaps. This requires:

- Incentivise promotion of healthy practices through diversion of subsidies from practices that have short-term individual gains, to those that bring shared benefits and promote healthy ecosystem services. These include activities that encourage green rural livelihoods and circularity. Encourage procurement of agroecologically grown produce through the public procurement system, e.g., MSP, PDS, mid-day meals
- Set up mechanisms to assess environmental health through farming practices and reward the same. Develop standards and a certification process exclusively for agroecology-based production systems, similar to organic or natural farming. Establish annual awards for villages that achieve gold, silver, and bronze ratings
- Embed agroecology in the education system of primary, secondary, and higher education levels that helps the young generation become more aware about agroecology
- Facilitating an ease for certification of natural or organic farm produces and market incentives for low water intensive crops will incentivise the shift. Restructuring MSP favoring crops with low water and environment footprints will motivate farmers to grow such crops

4.9.2. Applied Science and Technology

Encourage inter-disciplinary macro level research to guide region-specific agroecological recommendations for adaptation and resilience. Long term studies of different agroecological zones will provide evidence of the impact of agroecology practices on soil health, biodiversity, resilience and socio-economic benefit. Promote the development of:

- A framework for 'village level agroecological certification' that enables communities to receive payment for ecosystem services
- An AI-based digital tool using remote sensing data to assess the impact of agroecology on soil health, biodiversity, and ecosystem services

4.9.3. Implementation to Realise Agroecological Benefits

- Develop capacity building modules for unique agroecological zones. Besides trainings, hand-holding is important, through FFS, that encourages horizontal learning
- Incentivise ecologically produced products through market linkages, carbon credit etc. Encourage agroecological entrepreneurs at the village level and establish market linkage through FPCs exclusively centered around agroecology theme

4.9.4. Strengthen Institutional Support and Capacity Building

- Capacity building and on-going knowledge enhancement of the existing cadre in the Department of Agriculture and the Agriculture Technology Management Agency (ATMA) for agroecology is essential. It is important to create a block-level cadre for agroecological entrepreneurs
- Training and capacity building models are required for farmers/FFS, FPCs, and implementing agencies to create awareness and sustainability of agroecology
- Scale up a successful agroecological model through FFS, exposure visits, and demonstration farms

4.10. Conclusion

As we move towards India@2047, the growing demands for food and water coupled with climate uncertainties, make agroecology a sustainable pathway for the future. In this, all stakeholders have a role. The knowledge already exists – drawing from both scientific insights and diverse traditional practices across regions. What is now required is conscious leadership to mainstream agroecology within national and state missions, ensuring it becomes central to long-term development strategies. Beyond policy integration, however, sustained investment in agroecological practices is crucial. This requires mobilising both public and private investors to actively support agroecology. Mechanisms are required that facilitate the adoption of good practices, while discouraging resource exploitation. Transdisciplinary scientific research is needed to make informed decisions; to guide policy and practice, to assess trade-offs, as well as to generate evidence. Practitioners play an important role in bridging the last mile connectivity. They are the bridge between the primary stakeholder, science, and programmes. The farming community are the primary stakeholders on whom the sustainability of our tomorrow depends. Learning from and working together with them, as partners, particularly women and youth, ensures that their and our needs are met.

Agroecology offers a resilient, inclusive, economically and ecologically sound pathway for India's agricultural sector. It safeguards natural ecosystems and ensures sustainable co-living as we face the impact of climate change. Despite all progress made in different sectors, agriculture continues to host a large part of population. Livelihoods that depend on agriculture stand to benefit from a transformative agroecological approach to production, productivity and utilisation of natural resources. The tasks at hand demand more of thoughtful skill and awareness building among farmers, consumers and the intermediate institutions. Food security and livelihood sustenance are considerably less at risk when we apply agroecology principles. The bonus is that it safeguards natural ecosystems and contributes to better climate change resilience.

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Endnotes

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Climate Change, Livelihood Vulnerabilities and Climate Finance

5

M. Manjula

The International Panel on Climate Change (IPCC) reports widespread, rapid, and intensifying shifts across key climate change parameters. Carbon dioxide concentrations are now at the highest in two million years, global surface temperatures have risen at unprecedent rates in the past 2,000 years, sea levels are rising at their fastest pace in 3,000 years, glaciers are retreating at unprecedent rates in at least 2,000 years, and Arctic sea ice extent is at its lowest in at least 1,000 years (IPCC 2023). Increase in intensity and frequency of extreme events is also an observed climate phenomenon. Globally, an estimated 3.3 to 3.6 million people live in regions experiencing high vulnerability of climate change. The heavy influence of human agency in contributing to extreme weather and climate events have also been documented across the globe. Nearly all regions report increase in hot extremes, with the large majority of them attributing high confidence on human influence contributing to the increase. Increase in heavy precipitation is reported across all regions in Asia, Europe, as well as select regions across North America, South America, Africa, and Australia. Asia faces the greatest risk of coastal flooding , with the continent reporting the largest affected population, an estimated 63.81 million people.

Asia is also reportedly the continent that is expected to observe maximum changes in weather and climate parameters. Physical indicators of climate change – such as mean air temperature, extreme heat, heavy precipitation, climate-induced flooding, sea level rise, coastal flooding, coastal erosion, marine heatwaves, and ocean acidity – are all projected to increase across the continent. Climate Change induced changes is observed with high level of confidence in terrestrial and ocean ecosystems in Asia, with terrestrial ecosystems also reporting high level of species range shifts. However, climate change is observed to have mixed outcomes, both adverse and positive, on physical availability of water and agriculture, specifically crop production in the continent. Adverse impacts are reported in animal and livestock health and productivity, fisheries yield, and aquaculture productivity (Parmesan et al. 2022).

A 2 degree rise in temperature is projected to result in economic losses equivalent to 15 percent of the global Gross Domestic Product (GDP)

by 2050, and a 3 degree rise could lead to losses of up to 30 percent. Economic sectors in Asia are projected to experience adverse impacts of climate change. Economic damages due to climate change are expected to be felt mostly in nature-based livelihoods like agriculture, forestry and fisheries. These sectors experience direct impact of climate change through ecosystem damages, biodiversity loss, decline in productivity, and indirect impact through labour productivity losses and climate change induced adverse human health outcomes. Adverse impacts of climate change, exacerbate existing inequalities and vulnerabilities. Even under moderate levels of climate change, the livelihood security of people living in vulnerable geographies such as South Asia is expected to deteriorate further.

Vulnerable populations living in fragile geographies are bound to face scenarios where social tipping points intersect with environmental tipping points. Marginalised communities in these regions face compounded challenges – extreme human poverty, displacement, and low resilience to climate change impacts. Under such inequality conditions, the number of people living in extreme poverty is expected to increase by 122 million by 2030. Climate change and its associated vulnerabilities hinder progress toward several SDG targets, including; SDG 1 (no poverty), SDG 2 (zero hunger), SDG 5 (gender equality), and SDG 10 (reducing inequality) (Birkmann et al. 2022).

Globally, 18.3 percent of the population is multidimensionally poor, with 83.2 percent of the poor people living in Sub-Saharan Africa and Asia (UNDP 2025). About 887 million of the total 1.1 billion poor people live in regions experiencing at least one of the four climate hazards: high heat, drought, flood, and air pollution, and of this, 69 percent are exposed to high heat, 65 percent to air pollution, and 52 percent and 23 percent to extreme climate events like flood and drought, respectively. Poor populations across countries with diverse GDP growth levels experience differing degrees of exposure to climate hazards. Approximately 73 percent of the poor are exposed to two or more climate hazards, while 35 percent face exposure to three or four. South Asia and Sub-Saharan Africa have the highest numbers of poor people affected by climate hazards, with 99.1 percent of poor people in South Asia reporting climate hazard exposure.

For vulnerable communities who are reeling under the impact of current climate trends, adaptation is not a last-resort strategy but an imminent and essential necessity. Adaptation calls for adjustments to existing natural and human systems in response to climate change, reducing current climate risks while building the capacity to address future climate challenges. Successful adaptation measures must be targeted at reducing the livelihood vulnerabilities of the poor. Several options of adaptations are available, but their large-scale adoption and implementation is limited by the capability of the communities and nations.

Several countries have formulated climate policies and made adaptation to climate change, their national priorities. However, most of the adaptive actions implemented are short term, small in scale, and inadequate to address future climate risks indicated by current trends. The adaptation deficit faced by most of the developing nations stems directly from a significant shortfall in climate finance. The Intergovernmental Panel on Climate Change (IPCC) estimates peg the scale of finance required by developing countries at USD 295 billion per year to adapt to climate change by 2050. The current level of climate finance covers just about 4 to 8 percent of the total climate finance requirement.

Against this backdrop, the chapter examines the pathways through which climate change impacts livelihoods, traces some of the empirical evidence of livelihood vulnerabilities to climate change, details some of the adaptive mechanisms implemented, and provides a snapshot of ways in which climate finance is sourced. The focus is on climate change induced vulnerabilities of nature-based livelihoods, on which predominant sections of the population in developing countries depend on. Following the introduction, the chapter is further organised into thematic sections viz.,: (i) Climate Change Impacts on Livelihoods: The Pathways; (ii) Empirical Evidence of Climate Change Impacts on Livelihoods; (iii) Community Adaptation to Livelihood Vulnerabilities from Climate Change: Role of Finance; (iv) Mobilising Climate Finance: Addressing Livelihood Vulnerabilities; (v) India's Climate Finance Landscape and (vi) Conclusion.

5.1. Climate Change Impacts on Livelihoods: The Pathways

Effective and successful adaptation strategies addressing impacts of climate change are those that account for and address existing vulnerabilities. Vulnerability is a situation of susceptibility of systems and people, that is a function of exposure, sensitivity, and adaptive capacity (Kasperson et al. 1995) (Figure 5.1). For adaptation measures to be effective, they must be grounded in the vulnerability context of the poor. A livelihoods-based approach to poverty reduction offers a framework for understanding this vulnerability context, moving beyond the traditional definitions and approaches. While conventional perspectives of poverty view poverty primarily as an economic condition; however, poverty in reality is complex, variable, and multidimensional.

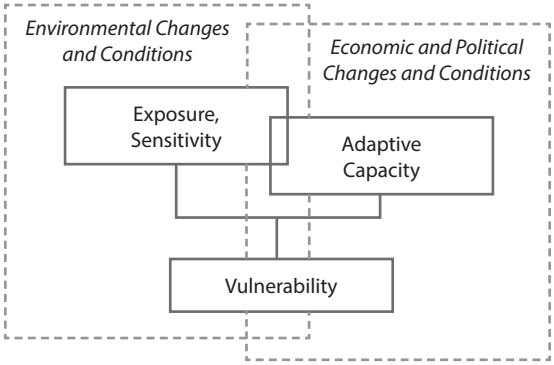

Figure 5.1: Vulnerability Framework

Source: Adapted from IPCC, 2001

The livelihoods approach helps accommodate the complex set of factors that constrain or enable poor and marginalised people's ability to eke out a living. The United Nations Conference on Environment and Development (UNCED) expanded the concept to include aspects of economic, ecological, and social dimensions, and advocated the idea of sustainable livelihoods (Brundlandt Commission 1992). A more comprehensive definition of sustainable livelihoods was provided by Chambers and Conway (1992), which was further modified by Ian Scoones and incorporated into the operational definitions of the sustainable livelihoods concept and approach.

> Ian Scoones (1998):
> A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.

Fundamental to the definition of sustainable livelihoods is the asset base on which livelihoods are build. The framework comprises three core elements: (i) livelihood resources, (ii) livelihood strategies, and (iii) institutional process and organisational structures (Krantz 2001). Various multilateral and national organisations adopt these pathways for livelihood assessments.

Livelihood resources refer to material assets – including natural, physical, financial, and human capabilities – as well as social and political factors. Any shock to these livelihood resources have detrimental consequences for livelihood sustainability of low-income households, pushing them into perpetual poverty traps. The Millenium Ecosystem Assessment identifies climate change as a major contributing factor for degradation of natural ecosystems and loss of ecosystem services, and a prime factor for perpetuating poverty (MA 2005). In the context of climate change, livelihood vulnerability assessment should involve understanding of the ways in which livelihood resources are impacted by climatic factors. Climate change impacts livelihoods through direct climatic stressors and through interactions with non-climatic stressors. Direct stressors related to vulnerability arise from changes in climate parameters such as temperature, precipitation, and occurrence of extreme events, while indirect effects occur through changes in ecosystems and disruptions to the economic systems that support people's lives and livelihoods.

Natural capital – the foundation of nature-based livelihoods – is at the highest risk

from climate hazards. The primary livelihood resources available to the poor are natural resources and ecosystem services derived from them. Any harm to natural resources and natural ecosystems inevitably heightens vulnerability and jeopardises the livelihoods of populations dependent on them.

Emerging evidence also points to the prevalence of multi-hazard risks – which refers to the occurrence of repeated and successive climate events – which create compounding and cascading livelihood risks, pushing the poor into vicious cycles of extreme poverty (Räsänen et al. 2016; Martha et al. 2015). There is a more robust evidence of this in slow and rapid onset climate events viz., temperature rise, heatwaves, and precipitation, which has implications for frequency and intensity of droughts, with livelihood consequences, specifically those heavily dependent on rainfall like agriculture.

Non-climatic factors related to governance amplify the impact of these climate events through poor provisioning of services like poor soil and water management, intensification of agriculture, wetland degradation, etc (Olsson et al. 2019). The direct and immediate impact of climate change on reduction in economic output in nature-based livelihoods like agriculture, forestry, livestock, and fisheries pushes people depending on these livelihoods into a cycle of recurrent poverty (Kihara et al. 2020). Another pathway of impact is through shocks to specific livelihood assets, pushing vulnerable groups into poverty (Cinner et al. 2018).

Contribution of climate related hazards, both the slow onset shifts and the extreme events, on exacerbating the vulnerabilities of the poor, through adversely affecting their livelihood resources is reported with high confidence in the IPCC reports (Birkmann et al. 2022). The reports present the observed impacts of 23 climate hazards, on nine key livelihood outcomes (Table 5.1).

The natural assets included in the list of livelihood resources analysed pertains to agriculture, livestock, fisheries, and forestry. Overall, except for crop variety and forest products, all the livelihood resources show medium risk from all the 23 climate hazards. Crop variety and forest produce is predicted to experience overall low risk from the analysed climate hazards. Each of the climate hazards has varying intensity of risk influence, ranging from low to high, on the individual livelihood resources (Table 5.2).

Natural assets related to agriculture face the highest risk from climate hazards, followed by livestock, fisheries, and forests. Crop yield shows high risk in response to about nine climate hazards, medium risk from seven, and low risk

Table 5.1: Livelihood Resources and Climate Hazards

Livelihood Resources	
1. Crop yield	6. Income/Financial assets
2. Farmland/Arable crop land	7. Life/Bodily health/Food security
3. Fisheries/Aquaculture	8. Pasture/Rangeland/Livestock
4. Forest products	9. Crop variety
5. Housing stock	

Climate Hazards							
Heat	**Cold**	**Wet**	**Dry**	**Wind/ Storm**	**Snow/Ice**	**Coastal**	**Other**
1. Heatwave 2. Permafrost thawing 3. Warming trend	4. Cold spell 5. Frost	6. Landslides 7. Pluvial floods 8. River flood 9. Wet trend	10. Drought 11. Dry trend 12. Wildfire	13. Hail 14. Severe storms	15. Heavy snow 16. Lake/Sea ice/ Reduction 17. Snow avalanche 18. Snow reduction	19. Coastal erosion 20. Coastal flood 21. Salinity 22. Seal level rise	23. Ocean/ Lake acidification

Source: Authour's adaptation from Birkmann et al. 2022.

Table 5.2: Intensity of Climate Hazard Risk to Livelihood Resources

Livelihood Resources	Risk Intensity from the 23 Climate Hazards		
	High	Medium	Low
Crop yield	9	7	7
Farmland/Arable crop land	1	10	12
Fisheries & aquaculture	6	4	13
Forest products	2	6	15
Housing stock	5	6	12
Income/Financial assets	4	10	9
Life/Bodily health/Food security	11	5	7
Pasture/ Rangeland/ Livestock	7	7	9
Crop variety	2	6	15

Source: Authour's adaptation from Birkmann et al. 2022.

from another seven. Pastureland, range land, and livestock face high and medium risks from seven climate hazards each. Fisheries and aquaculture experience high to medium risk from 10 out of 23 climate hazards. In contrast, crop variety shows only medium to low risk from climate hazards. Income and financial assets show high to medium level of risk, similar to the assessment for physical assets such as housing stock. Human assets – represented by life, bodily health, and food security – experience high risk from about 11 out of 23 climate hazards. Forest products and crop variety experience similar level of risks from climate hazards.

Table 5.3 presents the distribution of risk intensity from 23 climate hazards across nine livelihood resources. The climate hazards that pose high to medium risk to all nine livelihood resources are: (i) warming trend, and (ii) coastal floods. Climate hazards like drought, dry trend, sea level rise, and pluvial floods pose high to medium risk to eight out of nine livelihood resources analysed. Salinity and severe storms pose high to medium level risk to seven out of nine livelihood resources. Warming trend, followed by dry trend, is the climate hazard with the highest risk for most livelihood resources. Landslides and coastal floods pose medium risk to most livelihood resources analysed. Lake/sea/ice reduction, heavy snow, cold spell, hail, wildfire, etc. pose low levels of impact on livelihood resources.

Table 5.3: Climate Hazards Risk Intensity Spread Over the Nine Livelihood Resources

Climate Hazards	Risk Impact on Livelihood Resources						
	High	Medium	Low	Climate Hazards	High	Medium	Low
Heatwave	2	3	4	Wildfire	1	2	6
Permafrost thawing	0	2	7	Hail	1	1	7
Warming trend	7	2	0	Severe storm	5	2	2
Cold spell	0	1	8	Heavy snow	0	1	8
Frost	1	2	6	Lake/Sea/Ice reduction	0	0	9
Landslides	0	5	4	Snow avalanche	0	3	6
Pluvial floods	5	3	1	Snow reduction	1	4	4
River flood	3	3	3	Coastal erosion	0	3	6
Wet trend	0	2	7	Coastal flood	2	7	0
Drought	6	2	1	Salinity	3	4	2
Dry trend	4	4	0	Sea level rise	5	3	1
Ocean/Lake acidification					1	2	6

Source: Authour's adaptation from Birkmann et al. 2022.

Table 5.4: Climate Vulnerability – High Risk Cluster

Livelihood Resources	Climate Hazard – Risk Intensity					
	Warming trend	Pluvial flood	River flood	Drought	Severe storms	Sea level rise
Crop yield	High	High	High	High	High	Medium
Fisheries and aquaculture	High	Medium	Low	High	High	High
Income/Financial assets	High	High	Medium	High	High	Medium
Life/Bodily health/Food security	High	High	High	High	High	High
Pastrue/Rangeland/Livestock	High	High	Medium	High	High	Low

Source: Authour's adaptation from Birkmann et al. 2022.

Among the natural assets assessed, those falling into the high-risk cluster are crop yield, pastureland/range land/livestock, and fisheries and aquaculture. All these assets are under high risk from climate hazards like warming trends, drought, and severe storms. Crop yield, in particular, is projected with high confidence to be affected by all major climate hazards – warming trend, pluvial floods, river floods, drought, and severe storms – while sea level rise is expected to pose a medium level of risk (Table 5.4).

Climate hazard's impact on livelihood resources translate into uneven livelihood outcomes across income categories. An estimation of average income losses attributable to climate change carried out across 92 developing countries, reveals that the lowest 40 percent income category experiences losses that are 70 percent higher than those faced by wealthier sections of the population (Hallegatte and Rozenberg 2017).

5.2. Empirical Evidence of Climate Change Impacts on Livelihoods

The IPCC assessment of climate change impacts on livelihood resources reveals that nature-based livelihoods – agriculture, livestock, fisheries, and forestry – are the most affected. The assessment also establishes the centrality of South Asia in terms of vulnerability and livelihood risks from climate change. Spatial concentration of the observed climate hazards impacts on livelihoods is in South Asia, followed by Africa, and North America. India, Bangladesh, and Nepal, account for 33 percent of the total sampled livelihood impacts from climate hazards, reinforcing the centrality of South Asia with respect to concentration of these risks (Figure 5.2).

This is corroborated by evidence on research interest on the interlinkages of climate change and sustainable livelihoods. A bibliometric

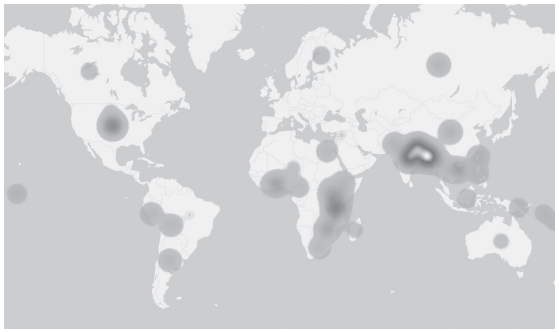

Figure 5.2: Spatial Distribution of Relative Confidence

Source: Authour's adaptation from Birkmann *et al.* 2022

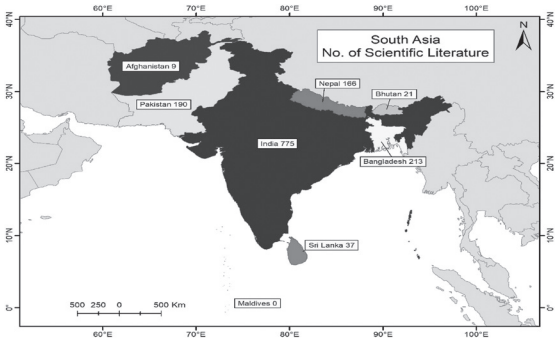

Figure 5.3: Extent of Studies across S. Asia

Source: Albugami *et al.* 2025

analysis of original research published in Scopus-indexed English-language journals on sustainable livelihoods and climate change between 2004 and 2023 reveals that South Asian countries, excluding Maldives, account for 27 percent of all publications across 161 countries (Figure 5.3) (Albugami et al. 2025). India accounts for 55 percent of the total original research around climate change impacts on livelihoods. The major topics of research in these articles are impact of climate change on water resources, agricultural production, ecosystems, food security and livelihood security, which affects large majority of people in South Asia. Research focussing on the interlinkages between climate change and sustainable livelihoods gained traction post 2012. The dominant key words in these articles were 'climate change', 'livelihoods', and 'adaptation strategies' (Zhang et al. 2019). The keyword livelihood emphasises on rural livelihoods, farmers, agriculture, livestock, and fisheries. The systematic review brings out the close linkage between adaptation and livelihood vulnerabilities and explores alternative adaptive strategies to address the impact of climate change on sustainable livelihoods.

India is viewed as extremely vulnerable to climate and population density (Charak et al. 2023). As per the data available from India Meteorological Department (IMD), a 1 degree C rise in temperature is reported in India, over a period of 120 years. Figure 5.4 shows the trend in mean temperature variation in India for the period 1901 to 2017. The trend in mean annual temperature shows that the nation is getting warmer over the decades.

Seasonal mean temperatures also show variation during the period, with winter, summer and spring showing warming trends. A comparison of seasonal mean temperature divergence over the reference period of 1901 to 1910 is mapped for the months of January–February, March–May, June–September, and October–December (Figure 5.5). The mapping covers the time blocks 1911–20, 1967–70, and 2011–20. The average mean temperature for the reference period 1901–10, which is 25.16 degree C, is shown as zero.

The combination of unprecedented climate change and the extent of intrusion into ecologically sensitive zones by the increasing vulnerable human population, have intensified climate change induced natural hazards in India. Between 2000 and 2019, the country experienced 321 natural disasters, affecting 108 crore people and causing 79,732 fatalities (Deroliya et al. 2022). And for the period 1953 to 2018, floods alone have resulted in USD 3,000 billion worth damage to properties and loss of 100,000 lives (O'Brien et al. 2004). The global climate risk index of 2019 ranks India 7th out of 181 countries on climate change effect (Eckstein 2018). Twenty seven out of 35 states and UTs are highly vulnerable to extreme hydro-met disasters, and 75 percent of districts in India are vulnerable to climate induced cyclones, flood, drought, and cold waves (Figure 5.6) (CEEW 2021).

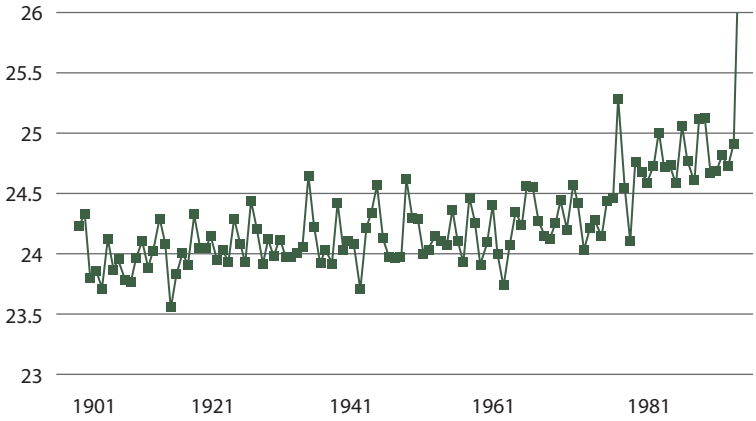

Figure 5.4: Trend in Mean Annual Temperature in India (1901 to 2017) (India)

Source: Adapted from Charak et al. 2023

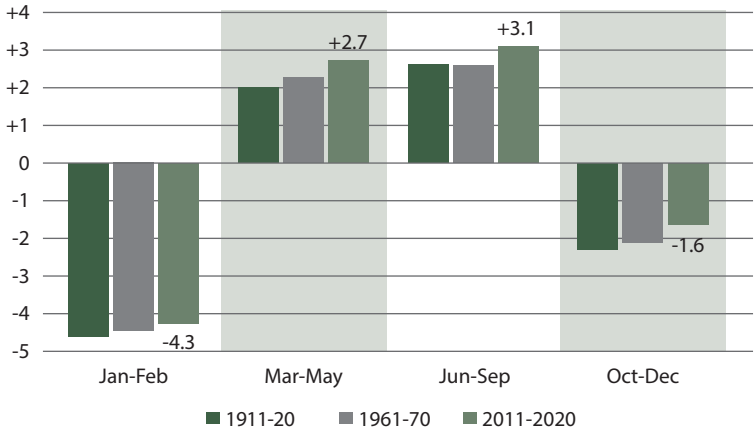

Figure 5.5: Average Divergence from Mean Temperature (1901 to 2020) (India)

Source: Adapted from Charak et al. 2023

Extreme event / Zone	Flood	Drought	Cyclone
Northern	High	Medium	Low
Southern	High	High	High
Eastern	High	Medium	High
North Eastern	Medium	Low	High
Western	Medium	High	Medium
Central	Low	Medium	Low
High: (0.41-1) Medium: (0.21-0.40) Low: (0.00-0.20)			

Figure 5.6: Intensity of Extreme Climate Events – Regions of India

Source: CEEW 2021

Extreme climate events alter water availability and distribution, affecting the food and livelihood security of millions of vulnerable people who depend on nature-based livelihoods. In India, agriculture – where over 56 percent of the cultivated land is rainfed and more than 80 percent of the farmers are smallholders – will be worst affected. Climate change is predicted to impact rice and wheat output in the Ganga-basin (Lizumi et al. 2014) and marine fisheries output in Northeast India (Spikjers et al. 2021). Climate change induced pest and disease infestation and new pest emergence is predicted to result in 15 to 20 percent loss in tea production in Northeast India (Hasegawa et al. 2018). Rising temperatures have already resulted in an estimated cumulative loss of 40 million tonnes in wheat, maize, and barley in India (Bapuji Rao et al. 2014).

Direct impact of climate change, through temperature and precipitation variation, is estimated to result in reduction of wheat output by 1–8 percent across Punjab, Haryana, Uttar Pradesh, and Bihar (Daloz et al. 2021). Increase in minimum temperature negatively impacts rice and wheat output in Indo-Gangetic plain (Mall et al. 2017). Delayed sowing and increased irrigation requirements have been reported in Madhya Pradesh and Rajasthan (Birthal et al. 2014). In contrast, yield increase is reported from eastern India, indicating fluctuating outcomes for rice and wheat production. Rural ecosystems in India are highly affected by climate change, leading to changes in agricultural cropping patterns, loss of agro-diversity, and general decline in agricultural productivity.

Frequent extreme climate events like drought, floods, and cyclones have been reported in coastal Bangladesh, posing threat to agricultural productivity (Ahmed 2024). Climate change accelerating water scarcity, crop failures, livestock health, with implications for sustainability of livelihoods have been reported in India (Roy et al. 2024). About 60 percent of cropped area in India is rainfed and changes in rainfall pattern will have consequences for its agrarian economy. A 5 percent deficit in the long-term average monsoon is bound to result in economic losses worth 1.75 percent of India's GDP (Associated Chambers of Commerce and Industry of India or ASSOCHAM 2014). The growing frequency of extreme weather events like drought has livelihood consequences for India, where one-sixth of land area is classified as drought prone (Udmale et al. 2014). Over the 100-year period, between 1901 to 2010, 17 percent of the years were drought years, with the frequency increasing to 33 percent during the 10-year period between 2002 to 2012 (Niranjan et al. 2013). Climate change impact on agriculture and subsequently small holders has been reported from Nepal (Karki et al. 2020).

Studies reveal that agro-ecological livelihoods are the worst affected by climate change. Loss of agricultural income is a key driver of disproportionate impacts of climate change on livelihoods globally, with highest impact felt among resource-poor households (Dube

et al. 2016, Hoque et al. 2019). Most regions across the world are affected by warming trends, droughts, and sea level rise, all of which have direct consequences for agriculture through their impact on crop productivity, varieties, and croplands. Robust evidence has emerged for rainfall variability triggering short-term impacts in agricultural productivity and permanent loss in agriculture. Further, crop yield is among the high-risk livelihood resources, which is under high risk from multiple climate hazards (Figure 5.7).

By 2100, a 10 to 40 percent reduction in crop production has been predicted for the Indian subcontinent, resulting in an estimated economic loss to the tune of USD 113–367 billion, accounting for about 0.26 to 0.84 percent of the country's GDP. This estimation is based on economic loss due to climate variability induced yield reduction in just three main cereal crop – rice, wheat, and maize. Crop production is the second major source of income for agricultural households in India, with 93 percent and 75 percent of agricultural households engaging in crop production during kharif and rabi seasons, respectively (National Sample Survey Office or NSSO 2021).

Long term-impact study of climate variability for the period 1993–2024 on agricultural productivity in Ramanathapuram district of Tamil Nadu, India, using Ricardian model, reveals that a 1.3 degree C rise in maximum temperature combined with a 22 percent decline in precipitation shows 38 percent reduction in crop yield. Paddy, pulses, and millets experience the highest yield reduction (Praveena et al. 2025). The analysis shows that a 1 percent increase in rainfall in kharif season reduces net farm income by 0.45 percent, while a 1 percent increase in rainfall augments farm income by 0.23 percent. Ground water depletion and soil degradation are identified as major climate-induced livelihood resource impacts. Another study estimates that a temperature increase of 2.5 to 4.9 degree C would reduce rice yield in India by 32-40 percent and wheat yields by 41-52 percent (Indian Depository Receipt or IDR 2025).

Post-production losses have been reported in climate-sensitive crops like tomato in states like Madhya Pradesh, India. Increase in carbon-di-oxide concentration reduces iron, protein, and zinc in major cereals, rice, wheat, and maize. States like Madhya Pradesh, which grow climate sensitive crops like tomato, also show reduction in outputs (IDR 2025). The reduction in crop production has multiplier and cascading effects across the economy, undermining the food and livelihood security of marginalised communities in vulnerable regions. A study conducted in Dakshin Dinajpur district of West Bengal, India, reveals extensive impacts of climate change induced reduction in agricultural outputs and water shortage on the livelihoods of indigenous communities in the region (Roy et al. 2024).

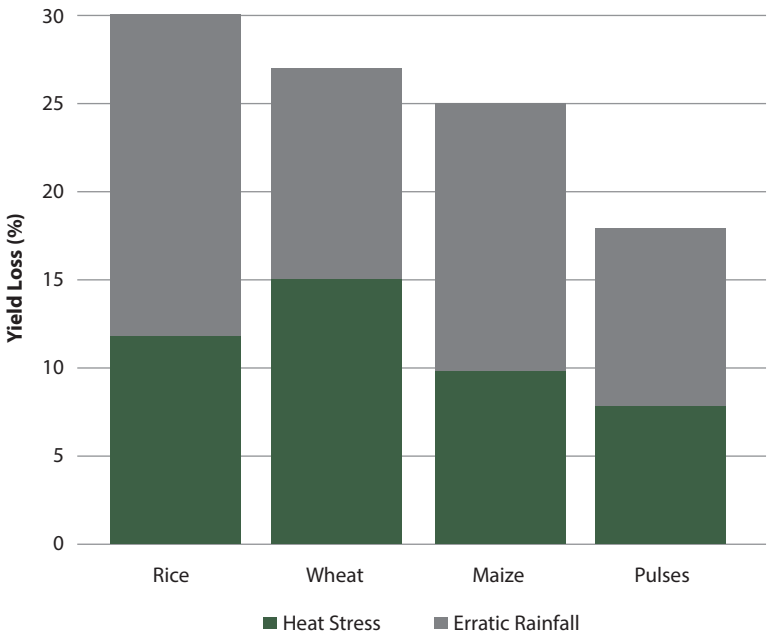

Figure 5.7: Crop Production Losses due to Climate Stress in India

Source: Adapted from Naaz *et al*. 2025

Shift from agriculture and other land-based production process to shrimp cultivation, decrease in fresh water sources, degradation of commons, and other ecosystem changes from saltwater intrusion attributable to climate-induced sea level rise is reported from Subarnabad, Bangladesh (Pouliotte et al. 2011). The mountainous Jumla district of Nepal shows evidence of increasing mean maximum and minimum temperatures as well as erratic and low precipitation. This has adverse livelihood impacts evident in the shift from rice cultivation to less water-consuming crops, distress sale of agricultural land and livestock, depletion of ground water, reduction in non-timber forest product (NTFP) harvest, etc. (Gentle and Maraseni 2012).

5.3. Community Adaptation to Livelihood Vulnerabilities From Climate Change: Role of Finance

Coping and adapting to climate change require a systematic planned approach to modify and adjust the ecological and socio-economic systems to address the impact of climate change. Adaptive capacities are context specific, and societies' adaptive capacity is reflective of its social and financial capital. Most of the community-driven adaptive strategies are reactive and are immediate and practical responses to short-term shocks and stressors and mostly require minimal capital investment (Bates et al. 2008, Sohngen and Mendelsohn 1998). Water management, irrigation management, ccrop and land diversification are a few examples of adaptive strategies. Planned strategic adaptive responses from the community are limited, as it requires systematic long-term planning and capital investment. Given this context, climate change poses an additional burden and risk, on most of the poor, whose livelihoods are already reeling under extreme levels of vulnerability.

Studies on adoption of drought mitigation measures like modern micro-irrigation technologies, in rural Maharashtra, shows limited adoption of this technology, among poor farm households despite a state subsidy (Udmale et al. 2014). Major constraining factors cited are high initial investment and high cost of maintenance of these technologies. State funded, administrative mitigation measures were the dominant mitigation programs implemented in the region. The cost of administrative mitigation measures for the 2012–13 drought year alone was to the tune of USD 332 million (GoM 2013).

Inability to adopt modern agricultural technologies to combat the impact of extreme climate events like cyclone and flood was reported among marginal and small farmers in Odisha (Moharaj and Rout 2021). Credit is reported as a major coping strategy to combat the impact of climate change in Odisha. The highest level of indebtedness during cyclones and floods is reported among marginal and small farmers whose major source of credit happen to be private moneylenders. The other major coping strategy is distress sale of assets like land, livestock, and jewellery, etc., and distress out-migration. Marginal farmers were not adopting modern agricultural technologies to combat floods. Many a times, climate change pushes small farmers to innovate and adopt alternative adaptive practices, as is observed in West Bengal, India (Datta and Behera 2022). However, farmers with adequate resources and assets are more capable of alternative adaptive practices than small and subsistence agricultural communities, as observed in Pakistan (Sohail et al. 2022).

There is corroborative evidence on the mediating role of income in differential adaptive strategies exhibited by farming communities (Torres et al. 2022). In a study conducted among farmers from diverse income quintiles, adoption of adaptive strategies to climate change was reported by 5.8 percent of the lowest quintile, while it was 11.1 percent among community members falling in the topmost income quintile. About 10.7 percent of respondents from the lowest income quintile reported access to climate information, while the same for topmost quintile stands at 22.5 percent.

A study on community adaptation to climate change in Nepal reveals that richer households who own irrigated lands can use it as a collateral to get loans from financial institutions, while poor households are left with no option to cope. Poverty and marginalisation are mediated by climate change as asset ownership of households determines their capacity to adapt to the impact of climate change (Table 5.5) (Gentle and Maraseni 2012).

A study on the socio-economic determinants of climate change adaptation among coffee growers in Jamaica brings out the importance of land ownership and tenurial rights over land, in facilitating access to finance for adoption of adaptive strategies to combat climate change. Overdependence on informal credit systems in the absence of ownership and tenurial rights and the additional vulnerability that this poses to the livelihood security of small holders was also explored in the study (Campbell 2025).

Table 5.5: Household Well-being Status (HHWS) and Differential Coping Strategies to Climate Change

HHWS	Household	Civil Society (Community Institutions)	External (Market and State)
Well-off	Changing cropping patterns, storage of grains, cash saving, selling non-irrigated land and purchasing irrigated land, lending out money.	Benefits from savings and credit groups, irrigation user groups, community forestry user group (CFUGs).	Accessing new agricultural technologies, new crop varieties, diversification of livelihood opportunities.
Medium	Changing cropping patterns, storage of grains, cash saving, selling properties (land/ livestock), increased seasonal migration, shifting towards skilled jobs.	Joined savings and credit groups, CFUGs for cash material and social support.	Access to skill-based jobs, livelihood diversification.
Poor	Changing cropping pattern, sale of property (seed, utensils, garments, livestock, land), changing food behaviour, consumption loan from local lenders, selling labour in the local and Indian market, children dropping out of school, and sent to do labouring work.	Joined CFUGs and savings and credit group (limited), not able to influence decisions for capacity building and affirmative action in benefit sharing.	No market-based livelihood diversification due to lack of land, education and skills.

Source: Adapted from Gentle and Maraseni (2012)

Influence of asset endowment and cash income flow on livelihood diversification as a strategy to combat climate change was reported in a study done in Mekong Delta, Vietnam. The study also emphasises the importance of access to credit and other financial security mechanisms for effective livelihood diversification among farmers in the region (Tien et al. 2022).

Instances of community-based adaptation facilitated by development agencies is also common. Efforts at climate change adaptation in Subarnabad, Bangladesh was an outcome of a collaborative initiative between a development agency (Canadian International Development Agency or CIDA), a national Non Governmental Organisation (NGO) (Cooperative for Assistance and Relief Everywhere or CARE), and a local NGO (Institute of Development Alternatives or IDEAL) in the region. The financial and technical support received from the development agency and the NGOs was instrumental in building the capability of the community to adapt to climate change (Pouliotte et al. 2011).

The above discussion brings to light the differential impacts and responses to climate change impact across diverse livelihoods context. The mediating role of socio-economic and locational contexts on the intensity of adaptive responses to climate change and its impacts on livelihoods is also evident. The individual adaptive capacity gap can be overcome only through concerted formalised approaches at climate change adaptation. Formalised adaptation refers to situations where external agents enable climate change adaptation through additional funding and financing mechanisms and building human and institutional capacities. Formalised adaptation efforts expand the scope of individual and community-based climate adaptation interventions that can be put in place in the context of livelihood vulnerabilities to climate change (Barret 2013).

Formalised adaptation strategies also highlight the centrality of the role of climate finance for catalysing adaptation to climate change induced livelihood vulnerabilities. Enhancing adaptive and coping capacities of communities is a development priority in developing countries. This is especially so in nations where large majority of the population are dependent on nature-based livelihood that are heavily impacted by climate change. Many developing nations also suffer adaptation deficits, primarily driven by the limitation of institutional, financial, and technical capabilities to support development initiatives that combat current and future climate trends. The subsequent section gives a snapshot of experiences of mobilising climate financing and implementation of climate change adaptation policies for addressing livelihood vulnerabilities across the global south.

5.4. Mobilising Climate Financing: Addressing Livelihood Vulnerabilities

Access to finance has been identified as a very important risk management and climate change adaptation strategy for farmers (Cull et al. 2014). The poverty growth inequality triangle theory brings out the interlinkages between inequality, finance, and poverty reduction (Grammy and Assane 2006). Studies reveal a strong association between exposure to climate change and the requirement of finance to overcome livelihood impacts of climate exposure, as well as the level of financial exclusion experienced by rural poor households (Abraham and Fonta 2018).

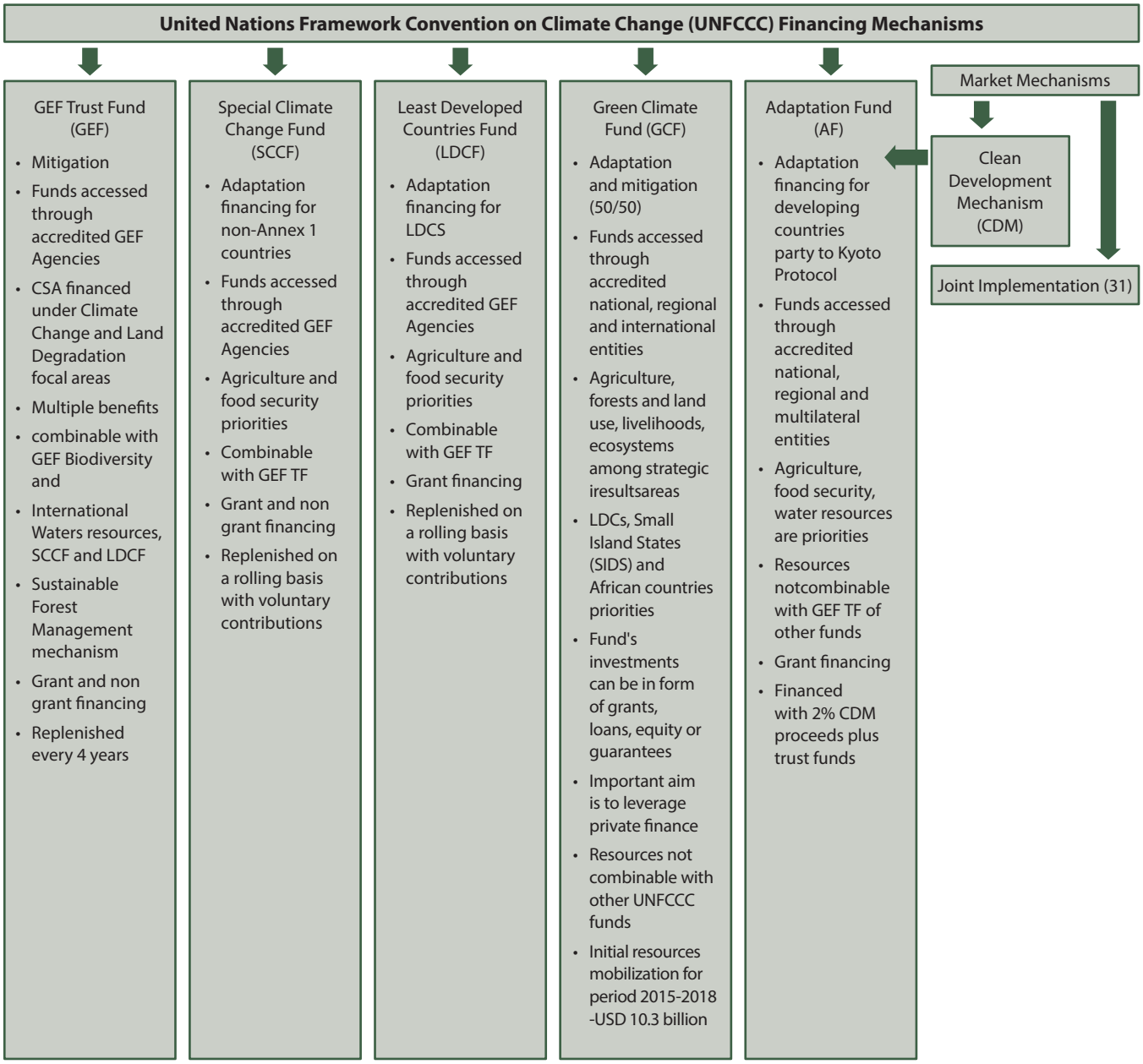

Figure 5.8: UNFCC Framework for Climate Financing

Source: FAO 2015

Majority of the vulnerable population engaged in nature-based livelihoods, seeking credit to adapt to climate change, will be unable to do so in the absence of access to climate finance. Article 9 of the Paris Climate Change Agreement details provisions of the climate finance options that developing countries can draw from to support climate change mitigation and adaptation activities (United Nations Framework Convention on Climate Change or UNFCC 2015). This section explores the existing sources of finance for climate adaptation and documents the various initiatives and strategies like public finance from government, grants, and loans from national cum multilateral development agencies, loans from private agents, and the market. Figure 5.8 presents the UNFCC framework for climate financing.

The 2024, Conference of Parties, (COP 29) held at Baku, Azerbaijan, also referred to as 'Climate Finance COP', set the New Collective Quantified Goal on climate finance (NCQG) at USD 300 billion per year by 2035 (UNFCC 2025). The NCQG is the quantum of finance that should flow from the developed countries to developing countries. The plan to achieve this was through a Baku to Belem Roadmap to mobilize USD 1.3 trillion, which the COP presidency will finalise time for Belem, for climate action in developing countries. The aim of the roadmap is to scale up climate finance, accelerate implementation of Nationally Determined Contributions (NDCs), and leverage and transform climate finance as an instrument to secure livelihoods. The potential sources identified include: (i) bilateral concessional finance from developed countries (USD 80 billion), (ii) concessional and non-concessional multilateral finance from multilateral development banks (USD 300 billion), South-South cooperation (USD 40 billion), Cross-border private finance (USD 650 billion), and other low-cost finance including carbon markets, debt swaps, private philanthropy, Special Drawing Rights (USD 230 billion) (UNFCC 2025).

The current estimated level of climate finance available, USD 115.9 billion in 2022 (Organisation for Economic Co-operation and Development or OECD, 2022) and 196 billion in 2023 (Climate Policy Initiative or CPI 2023), shows a sixfold rise in external finance flow to achieve the target set in the roadmap. Seventy eight percent of external climate finance is derived from public sources like Multilateral Development Banks (MDBs), and 22 percent from private sources like commercial banks and corporations. Sixty four percent of the finance goes towards mitigation, 19 percent to adaptation, and 17 percent to adaptation and mitigation.

The total global climate finance for 2023 was an all-time high of USD 1.9 trillion, 93 percent of this was directed towards mitigation, 3 percent for adaption, and 3.5 percent for adaptation-cum-mitigation strategies (CPI 2025). Figure 5.9 provides a snapshot of the global climate finance landscape. Domestic sources, national capital tool constituted 80 percent of this finance. Public sector sources constituted 78 percent of the international funding sources. Annual climate investment rate grew at an average rate of 26 percent between 2021 and 2023, compared to 8 percent reported between 2018 to 2020 (Figure 5.10). Private climate finance contributions increased by 50 percent during the one-year period between 2022 to 2023.

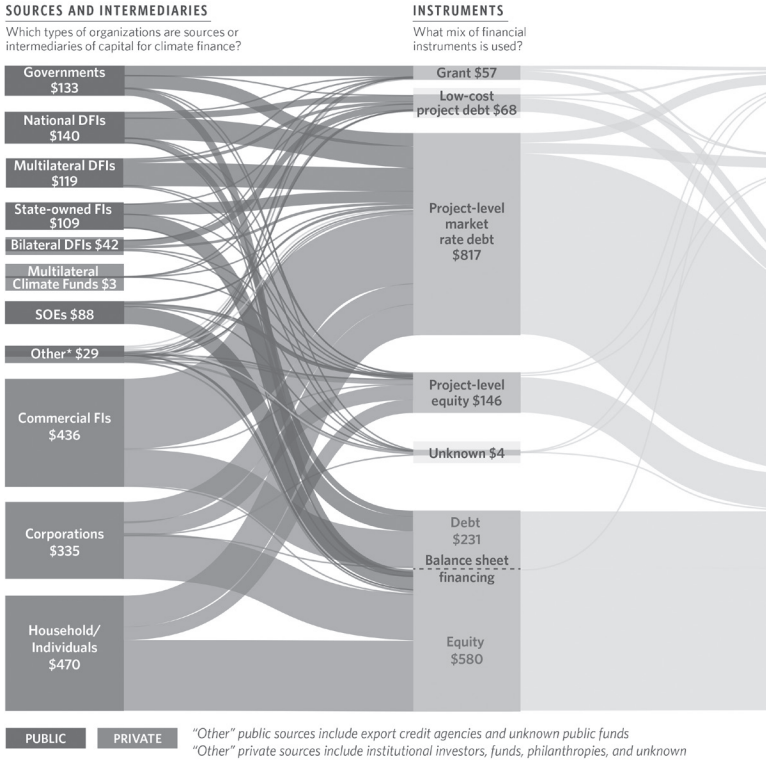

Figure 5.9: Snapshot of Global Climate Finance

Source: Global Landscape of Climate Finance, CPI

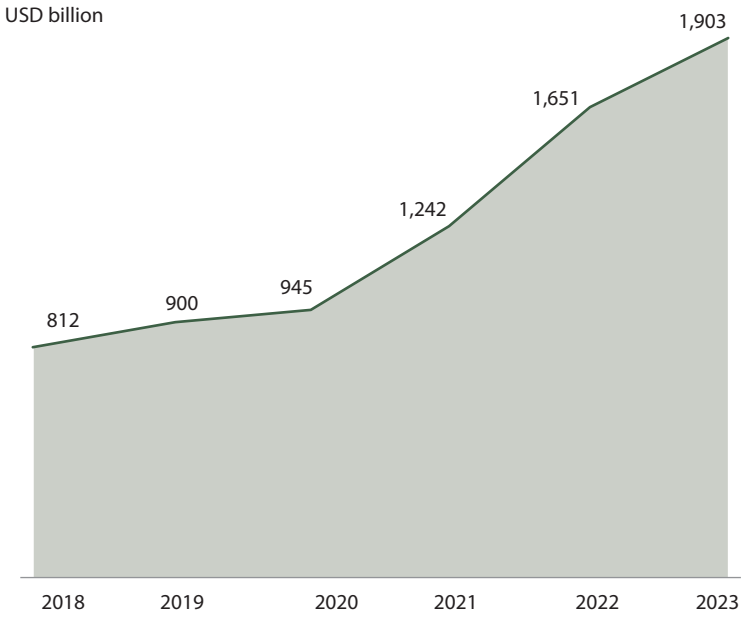

Figure 5.10: Trend in Global Climate Finance (USD, bn, Nominal)

Source: CPI, 2025

Figure 5.11 shows the sectoral share of climate finance. Sector covering nature-based livelihoods account for a huge share of the climate finance.

Some of the global agencies financing climate change are Green Climate Fund, International Fund for Agricultural Development (IFAD), World Bank, and Food and Agriculture Organisation (FAO). Specific and targeted financing is available under Special Climate Fund that assist technology transfer and adaptation; Kyoto Protocol Adaptation Fund that finances local adaptation programmes, and Least Developed Countries Fund which supports development of local adaptation programmes. The Green Climate Fund puts equal emphasis on both adaptation and mitigation responses (Chrisia et al. 2021).

The role of MDBs in rural climate finance, and adaptation and mitigation efforts is highlighted by Bazbauers (2024). MDBs are international organisations – public banks, that provide both technical and financial assistance for development. The initial MDBs did not have an explicit climate finance agenda. However, this changed post-Paris Agreement. The International Climate Treaty held MDB development finance as vital for enabling member nations to achieve their climate strategies, resulting in an expansion

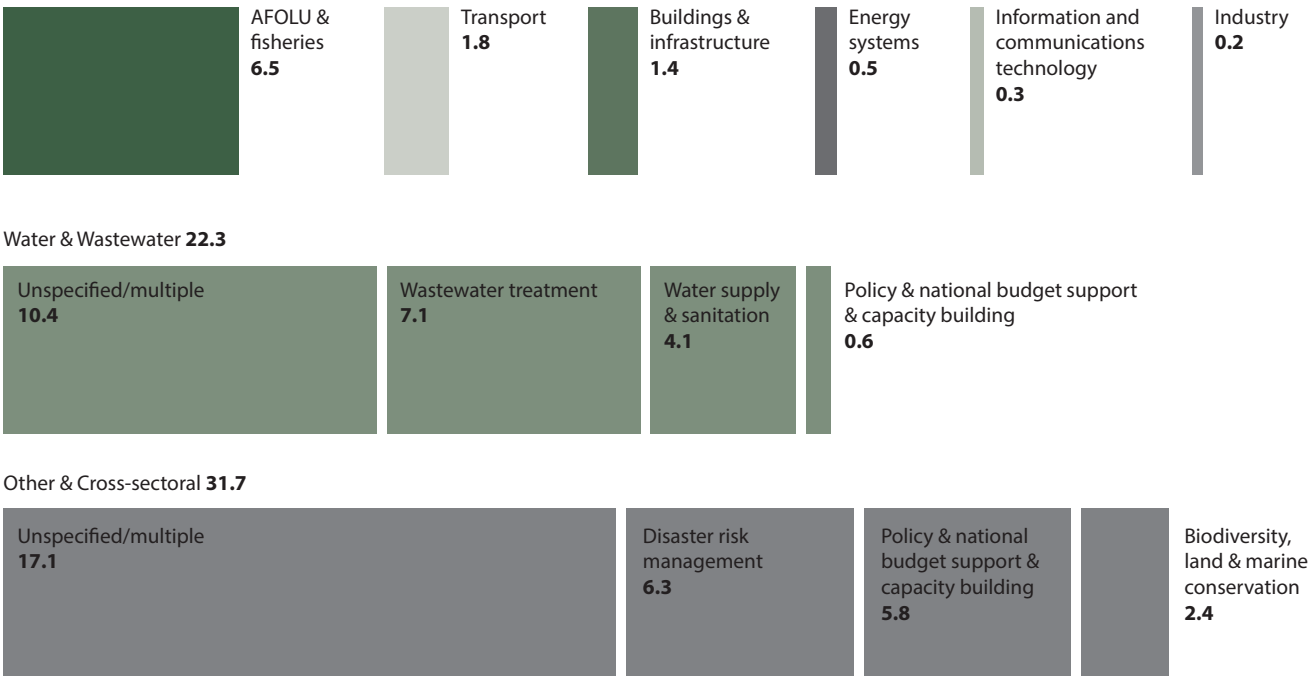

Figure 5.11: Sectoral Allocation of Adaptation Finance

Source: CPI, 2025

of the MDB mandate including climate finance (Peake and Ekins 2017).

In 2018, the six largest MDBs allotted USD 43 billion for climate finance. This accounted for 17 percent of the total USD 250 billion that was approved as new loan by all the MDBs that year (Bazbauers 2021). Evaluation of MDBs' climate finance for rural and agricultural development, reveals the pathways in which MDBs impact adaptation to climate change (Figure 5.12). The MDBs distinguish their financing approach to climate change from an adaptation, mitigation, and resilience perspective. Further, the narrow conceptualisation of resilience adopted in MDB, in contrast to the IPCC definition, limits the financial instrument's capacity to be transformative.

Further, their approval process, which prioritises financial feasibility over development impacts, often encourages projects with limited transformative power. Thus, the valuation reveals the earnestness of the MDBs towards climate change engagement through mainstreaming climate action in their lending portfolios, with very clear strategic, policy, and operational guidelines put in place. They are also normative agenda setters, influencing ways in which other global climate finance actors set their lending priorities. However, a major critique of the MDB approach is its limited transformative potential, as projects tend to focus narrowly on production and income rather than prioritising more equitable and sustainable climate futures (Bazbauers 2024).

The Adaptation Programme for Small Scale Agriculture (ASAP), a multi donor fund of the IFAD, is implemented with the aim to build resilience of highly vulnerable communities across the globe. Since its inception in 2012, ASAP has funded 41 countries and built adaptive capacities of more than 5 million small holders. One-fourth of the countries receiving ASAP investments have scaled up the resilience through complementary national-level funding for these initiatives (IFAD 2020).

A study on effectiveness of financial inclusion in increasing livelihood resilience to climate change carried out in Sub-Saharan Africa, highlights the role of central banks and microfinance institutions in climate finance (Abhraham and Fonta 2018). The study emphasises that central banks should put mechanisms in place to ensure that loans provided to farmers are financing climate change adaptation strategies on ground. Similar efforts by a central bank is reported in Peru, where the National Institute of Agrarian Innovation of Peru funds organic agriculture as a climate adaptation strategy (Coayla and Jimenez 2022). Climate finance for small-scale agriculture is equally distributed between adaptation and mitigation with 95 percent of finance coming from public sector, comprising of multilateral and bilateral organisations (Chiriac et al. 2020). FAO funds 'Yachachiq-Kamayoq', a women-led bio-business network adapting to climate change in Peru.

In addition, to direct financing efforts, central banks can play a key role in redesigning microfinance to meet the climate financing deficit, by providing clear directives to microfinance

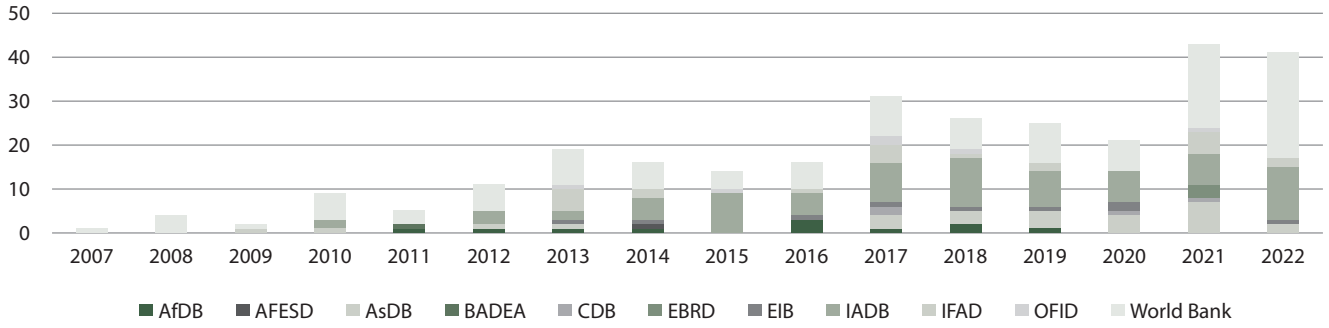

Figure 5.12: MDB Rural and Agricultural Development Climate Finance Projects

Source: Adapted from Bazbauers (2024)

institutions. Such directives can help realign and focus services and financial products to support poor households in adopting and implementing climate change adaptation strategies, particularly those reeling under heightened livelihood vulnerabilities from climate change. Chirambo (2016), proposes a Microfinance Climate Finance Framework for promoting climate resilient inclusive growth (Figure 5.13). The framework provides a business model that can be adopted by microfinance institutions as well as other private entrepreneurs and businesses to design climate risk management products.

A more effective climate adaptation strategy is to integrate it into the existing development priorities and interventions, ensuring that planned adaptation fully accounts for climate change impacts. Development efforts that are climate-resilience-neutral can lead to maladaptation, further worsening existing vulnerabilities. Vulnerability to livelihood resources is a major threat from climate change as discussed in the earlier sections. This is especially so in the contexts where communities come with differential resource capabilities for adaptation to climate change. Under threat of resource depletion and competition, vulnerability to livelihood resources may result in social non-cooperation. Addressing livelihood resource vulnerability and augmenting the health of natural resources, through improvement of resource governance, are considered 'public goods' from livelihood adaptation to climate change context (Sharma et al. 2014). Climate adaptation must be integrated into development initiatives that are designed after due accommodation of underlying vulnerabilities, recognising and prioritising local perspectives and knowledge (Ayers and Huq 2008).

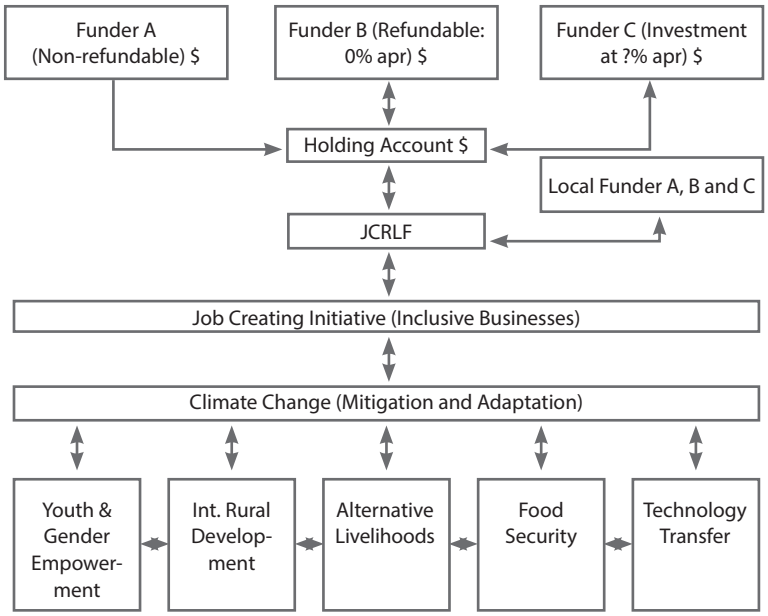

Figure 5.13: Microfinance-Climate Finance Framework for Inclusive Growth

Source: Adapted from Chirambo (2016)

Integrating climate resilient adaptive strategies into formal development planning helps promote provisioning of 'local public good' type investments for climate adaptation and mitigation. The UNFCCC had developed a five-year strategic programme covering aspects of impact, vulnerability, and adaptation to climate change. In responses, many member nations from the global north modified their climate policy framework and made climate change adaptation strategies a key mitigating component (Adger et al. 2007) The National Adaptation Plan which is developed by many member countries who are signatories of the Paris Agreement are also indicative of efforts at mainstreaming climate change adaptation in national development plans.

Mainstreaming climate change adaptation in the agricultural plans has been proven successful in Zimbabwe, where this was successfully implemented in 10 districts in a rainfed agroecological zone. Another successful case of such inclusive adaptive development planning has been documented from a pastoral economy in Kenya (Sharma et al. 2014). The model implemented in Isiolo County is supported by the local governance systems and builds capacities for community-led climate adaptation planning and implementation. It also provisioned decentralised climate financing and adopted a bottom-up approach in prioritisation of investments to build adaptive capacity. The emphasis of adaptive development plan is to strengthen natural livelihood resources and strengthening human capacity to adapt. It also ensures adoption of sustainable livelihood practices and overcomes systemic political and social barriers through better stakeholder engagement.

Encouraging private investment for financing climate change adaptation is also touted as an effective way of bridging the huge finance deficit in the climate finance space. Bois et al. 2012, identify several contextual, institutional capacity, and business model barriers. The contextual barriers refer to poor policy environment – which mandates businesses to implement disaster risk management strategies; poor institutional environment – like lack of legal and regulatory frameworks; poor market environment – inexperienced financial institutions; and poor value chains and human capital – lack of organisational and human competencies required for creating this investment architecture. The business model barriers listed out relate to: (i) very high upfront and operational cost of technology adoption; (ii) uncertain/unknown value addition that technologies bring to users; and (iii) lack of technical capacity among users for adoption and implementation of these technologies.

Chrisia et al. 2021 provide a framework for enabling private investment (Table 5.6). Creating an enabling environment for private investment in the climate finance space will encourage development of market-based mechanisms for catalysing adaptive and mitigative responses. The emergence of carbon market as a market-based incentive mechanism for emission reduction through carbon sequestration is a case in point.

Soil-carbon sequestration on terrestrial ecosystems is a key climate adaptation strategy with mitigation co-benefits (Wollenberg et al. 2016). Carbon sequestration on agricultural, pastoral, and forest lands could be a key strategy for nations across the globe to meet their emission reduction commitments as per the Paris Agreement (Smith et al. 2007). This is especially relevant for the Asian continent, where there is a high level of dependence on nature-based livelihoods. 36 out of the 46 Asian countries that initially ratified the Paris Agreement, identify agricultural sector as a major area for either adaptation or mitigation efforts, with 15 among them specifically identifying soils, grasslands, and livestock as focus areas for intervention (Richards et al. 2016). This has led to large scale emergence of carbon markets for financing mitigation efforts, which is an instrument available under Article 6 of the Paris Agreement.

Critical evaluation of the Chinese carbon market, specifically related to grassland management, reveals that the cost of achieving one tonne carbon dioxide emission reduction is higher than the economic cost of shifting to sustainable grassland management by herders as well as the project financing costs (Cacho and Lipper 2006). This is corroborated by Wilkes et al. 2012, in a study estimating the economic viability of carbon sequestration management practices in the Tibetan Plateau, pointing to the investment opportunity cost barriers for adoption of adaptive and mitigative practices by households.

Several other corroborative studies emphasise the importance of public funding for upfront initial investment and subsequent project investments in climate adaptation project. This is expected to reduce household and investor risk in market-based climate financing strategies aimed at reducing livelihood vulnerabilities

Table 5.6: Essential Criterion for Enabling Private Climate Financing

Criterion	Description
Sufficienlty Predictable Policy Envrionment	Policy direction, tools and instruments need to be sufficiently predictable in time and sope to instill confidence to invest in the private sector.
Generate ROI	Reduce risk sufficiently to enable a reasonable predictable return over long-term investmets.
Measurable	The financial vechicle has clearly defined and reliable metrics that communicates to the private sector abut risks and opportunities.
Politically Attainable	The private climate finance mechanism is an outcome of a coordinated, aligned, and productive partnership between the government and private sector.
Environmentally Sound	Does not result in maladaptation, and does not exacerbate climate change impacs.

Source: Adapted from Chirisa et al. 2021

through adaptation cum mitigation co-benefit approaches. Green bond markets for climate adaptation are also prominent and certified green agricultural bond have been used in Mexico (Fundacion EU-LAC 2020). Public private partnership models are also emerging as models for promoting localised climate change adaptation strategies and has successful models that are being reported from African countries like Zimbabwe.

5.5. India's Climate Finance Landscape

India's climate action is driven by the country's NDC and the target to achieve net zero emissions by 2070. India would require an estimated USD 206 billion at 2015–16 prices for the five-year period from 2015–30 to implement adaptation responses in agriculture, forestry, fisheries, ecosystems, water resources, and infrastructure. The country's national communication submitted in December 2023, pegs adaptation expenditure in a Business-as-Usual Scenario (BAU), at USD 648.5 billion expenditure up till 2030, at 2023-24 prices (GoI 2024). The country would need access to affordable finance and technology to bridge this climate finance deficit. Further, the nation has also announced the Viksit Bharat 2047, a vision to transform the country into a self-reliant and prosperous economy by 2047 in the 100th year of India's independence. The vision is based on the four pillars of Yuva (Youth), Garib (Poor), Mahilayen (Women), and Annadata (Farmers).

The National Action Plan on Climate Change (NAPCC) provides the framework for climate change response for the country. It comprises of nine national missions – focussing on areas like solar energy, water, forests, sustainable habitats, sustainable agriculture, the Himalayan ecosystem, and strategic climate knowledge. The climate actions spelt out in these missions include adaptation, mitigation, and dual approaches of adaptation-cum-mitigation (GoI 2007 action plan). The states and the UTs prepare their own State Action Plans on Climate Change (SAPCCs), which align with the NAPCC, while reflecting state-level vulnerabilities, priorities, and capacity gaps. The NAPCC and the SAPCC's integrate climate mitigation and adaptation into the national and sub-national development plans. The sub-national plans help decentralise the nation's climate response as a bottom-up approach to strengthen the nations climate resilience.

It also has market-driven schemes like Perform Achieve and Trade (PAT) scheme launched in 2012, and the carbon trading schemes introduced by 2022, for improving energy efficiency in energy-intensive industries (GoI 2025). The Government has used Production-Linked Incentive Scheme (PLIS), budgetary provisioning, fiscal instrument like GST Compensation Cell. The International Financial Corporation appreciates India's commitment to the climate goals. Major share of this finance is accessed from domestic sources (GoI 2024). India uses a climate finance taxonomy to facilitate resource flow to climate friendly technologies, identify sectors and activities consistent with India's climate action goals, to achieve the country's vision of net zero emission by 2070 (Figure 5.14).

The taxonomy is also in alignment with the developmental goals of Viksit Bharat. The taxonomy is considered as a living document, allowing for expansion of score and revision of sectors and activities that needs inclusion and prioritisation for climate financing. It facilitates investments in critical sectors during transition phase, enables market-finance for climate change adaptation and mitigation, and augment investments in indigenous technologies. The climate finance taxonomy, recognises agriculture as the backbone of India's economy. Building adaptation and resilience to climate change is the central theme in the climate finance taxonomy with respect to agriculture. The sector reports the highest finance-gap for adaptation and there is an increasing recognition of enabling private-sector participation in climate finance for this sector (Galbiati et al. 2025).

Agriculture and allied sectors are highly vulnerable to climate-variability and change. The sector contributes to 16 percent of GDP and is a source of livelihoods for 46.1 percent of the population, with 85 percent of holdings being small and marginal (GoI 2024). Average

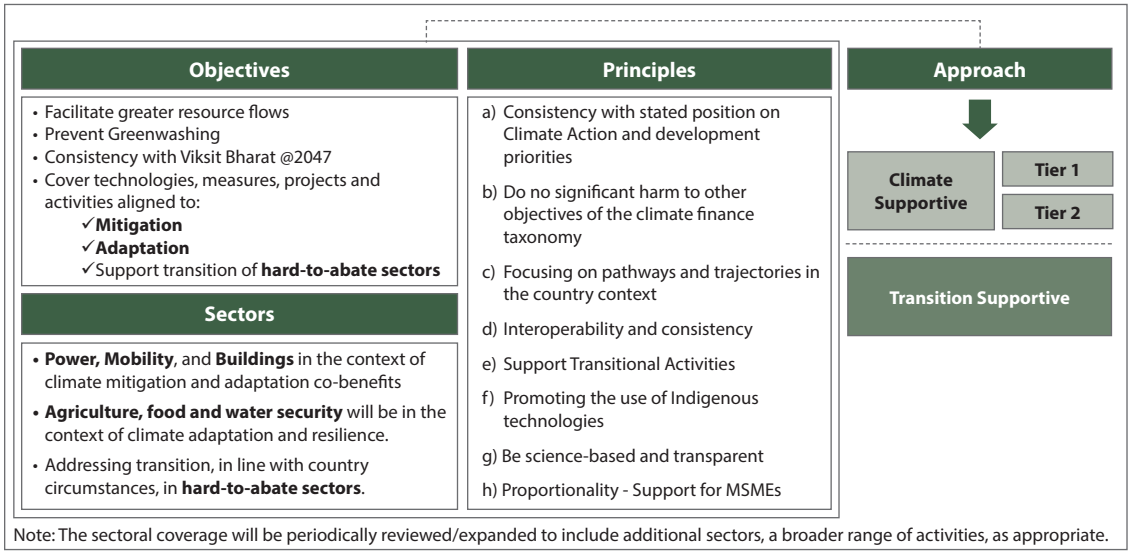

Figure 5.14: India's Climate Finance Taxonomy

Source: GoI (2024)

land holding is less than 2 hectares and only 55 percent of the gross cropped area has access to irrigation, thus exposing the sector to the vagaries of monsoon. Study conducted by the National Innovations in Climate Resilient Agriculture (NICRA) reports yield reduction in major cereals in India, rice, wheat, and maize, in the absence of adaptation efforts in agriculture. Livelihood vulnerability of the agriculture and allied sector impacts a large section of the country's population and has a multiplier and cascading effect on other sectors of the economy. The sector needs investment for modernisation, R&D for climate resilient technologies and varieties, infrastructure development for post-harvest facilities, as well as waste reduction, precision, and sustainable farming technologies.

5.6. State of Climate Financing in Agriculture

An estimation by Independent High-level Expert Group on Climate Finance (IHLEG 2025) indicates that developing countries would require USD 3.2 trillion annually as climate finance by 2035. Protecting nature and promoting sustainable agriculture would demand 11 percent of this outlay globally. Nations' finance for agricultural investment are financed from domestic public and private resources, with farmers being the biggest investors in agriculture. Globally, the domestic investments in agriculture, specifically climate-smart agriculture, amounts to USD 252 billion in 2012 (FAO 2016). About 40 percent of the climate finance for agriculture sector is broadly clubbed under rural development. International public finance in agriculture has been limited, except for MDBs, Green Climate Fund (GCF), Global Environmental Facility (GEF), and bilateral donors. MDBs are expanding their criterion of financing to include agriculture, agroecosystem services, and other agri-lending practices in their financing ambit. Financing related to agriculture and food security, increased from 18 percent to 23 percent over the period 2015–16.

Estimates say that small farmers would require, USD 443 billion per year to adapt (Figure 5.15). However, less than 16 percent of formal credit institutions in South Asia, Africa, and Latin America extend lending support to small farmers. The Agriculture, Forestry, Other Land Uses, and Fisheries (AFOLU) sector requires a 26-fold increase in annual funding by 2030 compared to the 2019/20 base amount of USD 16.3 billion.

A study done by the Climate Focus for Family Farmers for Climate Action, reveals stark

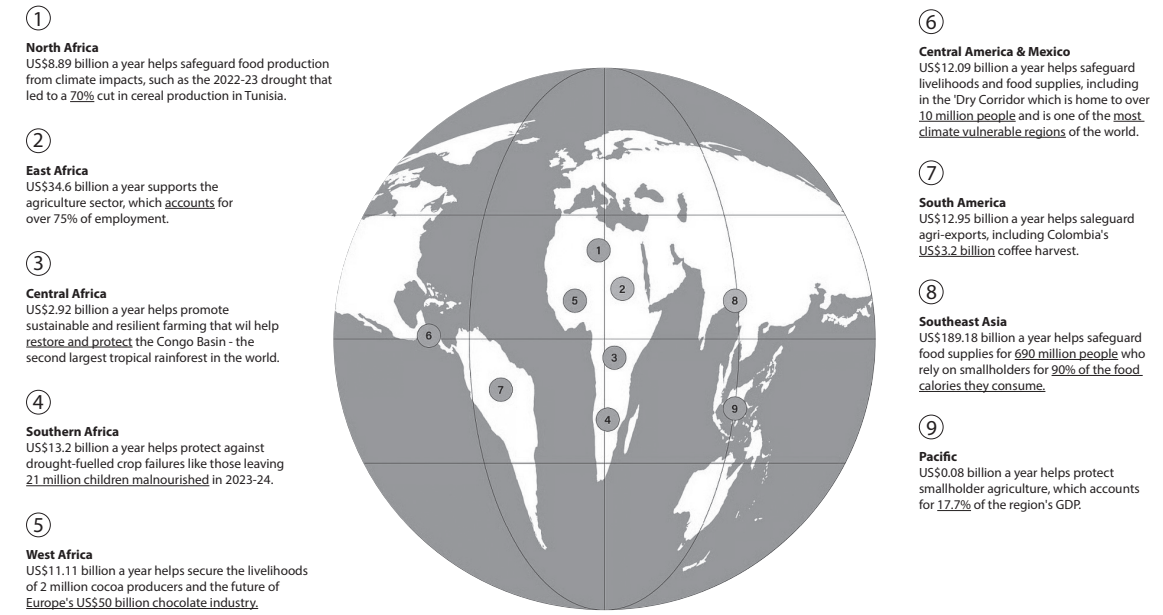

Figure 5.15: Small Holder Climate Adaptation Finance Requirement

Source: Climate Focus for the Family Farmers for Climate Action

inequities in terms of climate finance for small holder farmers. Farmers spent USD 368 billion of their income on climate adaptation strategies like soil conservation, crop diversification, and better irrigation (DtE 2025). This accounts for 40 percent of their yearly earnings. Table 5.7 provides the region-wise requirement for climate finance by small holders.

Table 5.7: Small Holder Climate Finance Requirement – Regionwise

Region	Incentivise climate-resilient, low-emission practices (US$ billion)	Early warning systems and adaptive safety nets (US$ billion)	Digital climate services provision (US$ billion)	Total (US$ billion)
Southeast Asia	151.31	34.87	3.00	189.18
South Asia	124.89	23.40	2.01	150.30
North Africa	7.88	0.93	0.08	8.89
East Africa	30.18	4.07	0.35	34.60
West Africa	8.66	2.26	0.19	11.11
Southern Africa	11.79	1.30	0.11	13.20
Central Africa	2.19	0.67	0.06	2.92
Pacific	0.07	0.01	0.00	0.08
South America	11.86	1.00	0.09	12.95
Central America & Mexico	11.22	0.80	0.07	12.09
Caribbean	1.04	0.18	0.02	1.24
Middle East	5.76	0.61	0.05	6.42

Table figures are to two decimal but totals given are precise figures

Source: Adapted from Down to Earth, Prime Source Federal Facility Compliance Act (FFCA) Study

The study also urged governments to repurpose agricultural subsidies, reform international financial institutions, and explore appropriate taxation and repurposing national funds allotted for general development activities towards climate financing. Subsidising capital cost or the rate of interest of private farmers' investment in agriculture is also suggested as a means of catalysing private investment in agriculture. These could help cover capital costs of adaptation investment for soil remediation, soil enrichment, soil and water conservation, etc. Blended financing options, for encouraging climate investments with low development pay offs is also an alternative suggested. This will also encourage mainstream commercial banks to get into climate finance. Monetising carbon credits is another suggested a way forward, however, the feasibility and social equity aspects of such initiatives need to be fully understood before their implementation.

5.7. Conclusion

Livelihoods across the globle, especially nature-based livelihoods, face huge challenge from climate change. Majority of the people dependending on nature-based livelihoods are from vulnerable greographies and communities. They come with limited individual capacities to adapt to climate change. Several countries have formulated climate policies and made adaptation to climate change their national priorities. However, most of the adaptive actions implemented are short-term, small scale, and not sufficient to cover future climate risks based on climate trends. The adaptation deficit that most of the developing nations face is a direct outcome of the deficit in climate finance.

There is a need for integrated approach to resolving climate adaptaion financing challenges in developing countries. These include formulating climate financing adapatation policy and establsihing necessary legislative frameworks to make these policies operational. There is also a need for harmonising climate financing policies with other development policies. The diverse livelihood resources are governed by sectoral policies that operate in silos and at times are competing with each other. This creates governance complexities and bottlenecks for designing comphrehensive climate change adaptation strategies and to take them to scale. Policies and processes across different line departments directly engaged in nature-based livelihood need to be synchronised for complementing efforts at strenghtening livelihood resources.

Establishing local climate adaptaion finance mechanisms can support community capacity building, create an enabling environment for private-sector investment in climate financing, and encourage private capital to flow into nature-based livelihoods. Establishing strategic partnerships at global, regional, and national levels are also essential for mobilising climate finance from global, multilateral and bilateral sources, development finance institutions, philanthropic institutions, and also private players. Stakeholder identification and engagement needs to be an integral part of the climate finance policy framework, helping to determine investment priorities and ensure the effecive utilisation of climate finance to generate broader public good.

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Jobs and Employment: Trends and Transitions

6

Rajesh Joseph

6.1. Introduction

India is currently at a pivotal point in its demographic transition. The country's workforce participation rate stands at 58.2 percent – the highest recorded since the survey series began in 2017–18 – and, in absolute terms, represents an unprecedented 643 million workers (PIB 2025). At the same time, the often-cited demographic dividend remains significant, with an estimated 65 percent of the population under the age of 35 and a median age of just 28. The potential of this 'demographic dividend' depends on the nature and the quality of employment. On one hand India has a young educated workforce. For instance, according to the Unified District Information System for Education Plus (UDISE+) there are more children finishing class XII now than a decade ago. In 2013–14, the Gross Enrolment Ratio (GER) for higher secondary education was 52 percent (53 for boys and 52 for girls). In 2023–24, the situation has vastly improved for the girls, they have overtaken the boys in enrolling for higher secondary despite the quality of the education, the GER for higher secondary education has improved to 55 percent (54 for boys and 58 for girls).

This scenario presents both an opportunity and a challenge. While the country has the potential to become a global production hub by leveraging its young population, the real challenge and opportunity lies in translating this demographic advantage into a productive workforce capable of securing a decent standard of living. Thus, this chapter will outline the structure of employment in India, examining the types of jobs available in the economy and the quality of work in terms of earnings, employment security, and access to social security. It will also highlight the areas where policy intervention is most urgently needed in order to fully harness the country's demographic dividend.

6.2. Trends in Employment

As India advances towards becoming the world's fourth-largest economy, one key indicator of this progress is its structural transition from an agriculture-based economy to a more modern

one. Such a transition is typically accompanied by a rise in the share of regular wage or salaried workers within the labour force. Data in the past two decades have shown that the share of regular workers have risen from 12 percent to 22 percent (SWI 2023). However, as the Periodic Labour Force Survey (PLFS) data from 2017 to 2024 (Table 6.1) shows, the pandemic has clearly disrupted this transition. The economic shock of the pandemic triggered a reverse migration of labour, pushing many workers back into agriculture. As a result, agriculture continues to function as an important source of livelihood for many households. This trend is likely to persist until the manufacturing and the service sectors expand sufficiently to absorb workers moving out of agriculture and create meaningful employment opportunities.

The rising education level among India's youth would increase the demand for non-farm jobs. As highlighted by the economic survey 2024–25, India needs to generate approximately 78.5 lakhs new non-farm jobs annually. Thus, it is crucial to identify sectors with the potential to generate substantial employment opportunities for the youth – not only in urban areas, but in rural regions as well. In the year 2024, around 134 lakh students in the 17–18 age group completed their higher secondary education (Ministry of Education, GOI, 2024) and they clearly need visible pathways forward. The critical importance of providing appropriate skilling and education for this rapidly expanding cohort of school leavers cannot be overstated.

From Table 6.1, it is evident that the shift from agriculture to non-farm employment has occurred predominantly through the construction sector. This sector has been able to absorb a significant share of the labour force moving out of agriculture. The robust expansion of construction – driven by large-scale infrastructure development across the country and rising demand for housing – has steadily increased its demand for labour. However, the industry is now facing labour shortages, with many major projects citing the lack of available workers as a primary cause of delays. This reflects the informal and precarious nature of construction work, which makes it unattractive to the growing pool of educated youths. Employment in this sector continues to be characterised by low wages, minimal employment security, and limited access to social protection despite the provisions of the Building and Other Construction Workers (BOCW) Act, 1996. Poor occupational safety conditions further compound these challenges. These issues will be elaborated later in the section on casual employment.

PLFS defines informal workers as "*workers working in unincorporated enterprises with fewer than 10 employees, casual wage labourers, contributing family workers, and those in regular wage jobs without social security*". From Table 6.2, if the Employees' Provident Fund Organisation (EPFO) threshold is used – where employers with more than 20 workers are required to register employees for

Table 6.1: Percentage Distribution of Employed Persons in India by Economic Sector from 2017-18 to 2023-24

Years	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Agriculture	44.1	42.5	45.6	46.5	45.5	45.8	46.1
Mining	0.4	0.4	0.3	0.3	0.3	0.3	0.2
Manufacturing	12.1	12.1	11.2	10.9	11.6	11.4	11.4
Electricity, water	0.6	0.6	0.6	0.6	0.6	0.5	0.5
Construction	11.7	12.1	11.6	12.1	12.4	13	12
Trade, hotel, restaurants	12	12.6	13.2	12.2	12.1	12.1	12.2
Transport/communication	5.9	5.9	5.6	5.4	5.6	5.4	5.4
Other services	13.2	13.8	11.9	12	11.9	11.4	11.9

Source: PLFS 2017–18 (PS+SS)

Table 6.2: Percentage of Workers Employed in Enterprises of Various Sizes

Number of persons employed	Less than 6	6 and above but less than 10	10 and above but less than 20	20 and above
Agriculture	93.24	4.63	0.61	0.26
Construction	69.01	19.46	2.66	5.88
Manufacturing	53.85	6.16	4.69	34.71
Traditional Services	83.48	7.37	3.79	5.34
Modern Services	27.03	12.92	14.99	44.72
Total	73.57	8.08	4.32	13.06

Source: Calculated from PLFS 2022-23*

provident fund benefits – as a benchmark, it can be inferred that only about 13 percent of the workforce is registered and therefore has access to some form of social security. This implies that the remaining 87 percent of workers continue to be employed informally, without access to basic social protection.

Table 6.2 indicates that formal employment opportunities are concentrated primarily in the manufacturing and modern service sectors. However, over the years, the manufacturing sector has struggled to absorb the large number of workers moving out of agriculture. As highlighted by a NITI Aayog (2025) study, India's growth trajectory has diverged from the conventional pattern observed in many other developing economies. India's economic growth has been largely driven by the service sector, which is reflected in the growth of formal jobs in the service sector as indicated in the Table 6.2.

The modern service sectors – comprising regular, formal work – is concentrated in industries such as health, education, research, information technology, finance services, and real estate. This pattern indicates that entry into the modern sector typically requires higher levels of education, along with specialised skills and training. In this context, initiatives such as the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) and other youth-skilling programmes becomes crucial. They play a vital role in equipping the youth with necessary skills and competencies needed to access formal employment opportunities in the modern, skill-intensive industry. Without such interventions, the workers face a high likelihood of remaining confined to the lower tiers of the service – particularly within the gig economy, which is often characterised by precarious work arrangements and unstable incomes.

The unemployment rate in India has been gradually declining, especially in the post-pandemic period. However, unemployment among graduates remains persistently high at 13 percent in usual status (ps+ss). According to the State of Working India 2023 report, unemployment rates are highest among young graduates under the age of 25, reaching 42 percent. Although most graduates secure employment by the age of 35, a crucial question

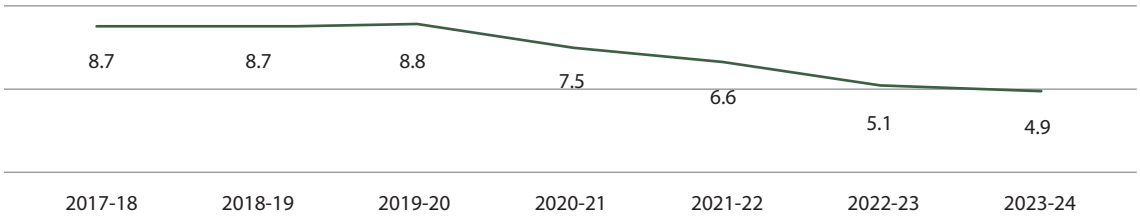

Figure 6.1: Unemployment and Quality of Jobs

Source: Data from PLFS 2017 to 2024

persists regarding the quality of employment on offer – specifically, whether these jobs offer decent working conditions, living wages, social security benefits, and the employment stability typically associated with regular or salaried work.

Table 6.3: Average Wages by Type of Employment

Type of Employment	India
Mean regular wage earnings (Rs)	20702
Mean self-employed earnings (Rs)	13279
Mean casual labour earnings (Rs)	10868

Source: Calculated from PLFS 2023-24

The primary factor motivating worker seeking employment in a particular sector is the prospect of earning a better income. An analysis of average earnings across various types of employment (Table 6.3) reveals that regular wage and salaried workers receive the highest earnings. In contrast, those grappling with economic challenges, often classified as the working poor, are predominantly concentrated in casual employment categories, such as daily wage labourers in construction or agriculture. These categories together account for about 55 percent of the workforce and are predominantly informal in nature. The data clearly indicates that casual workers are unable to secure even minimum wages, and their average weekly working hours hover around 40 hours. Notably, average wages exceed the minimum wage – and move closer to a living-wage threshold – when workers are employed in regular, salaried positions. Thus, the state's ability to improve overall wage levels depends primarily on the effective use of policy instruments such as raising minimum wages, strengthening regulatory oversight, and ensuring rigorous enforcement of labour laws to expand formal employment within sectors. Such interventions by the state can facilitate the creation of stable, better-paying jobs and enable workers to transition from self-employment and casual labour into more secure, regular forms of employment.

In India, the structure of employment has been towards self-employment rather than regular jobs. The available data from the PLFS indicates that the share of the regular/salaried jobs have been stagnant and there is a marked increase in the self-employment category year on year. The following section will examine the nature of these employments and their implications for livelihoods, particulalry their impact on the marginalised sections of the population.

6.3. India's Self-Employment Landscape: Emerging Trends and Opportunities

Self-employment continues to be the dominant form of employment in both in the rural and urban India. Various livelihood organisations –

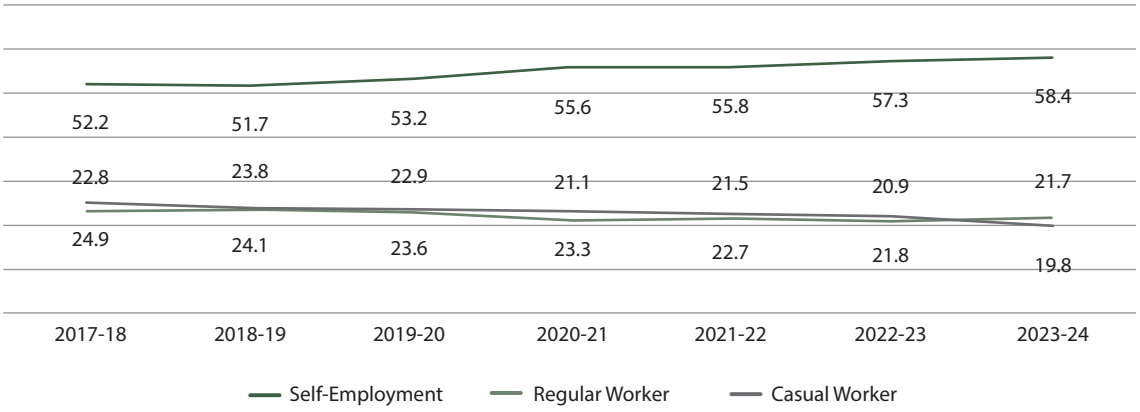

Figure 6.2: Percentage Distribution of Workers in Usual Status (ps+ss) by Status in Employment Estimated from PLFS

Source: PLFS 2017 to 2024

including NGO's, social enterprises, the National Rural Livelihood Mission (NRLM) and many central and state government sponsor schemes – have directly supported Self-help Groups (SHGs), artisans, and other marginalised groups in promoting micro-entrepreneurship and improving access to microcredit. Additionally, several flagship programmes of the government like the NRLM, MUDRA Loans, PM SVANidhi, have played a crucial role in extending affordable credit for self-employed workers.

In the post pandemic labour market, the share of self-employment has risen from 53 percent in 2019–20 to 58 percent in 2023–24. This upward trend underscores the need to critically assess whether self-employment has effectively enhanced the income security among the marginalised and economically vulnerable groups.

In rural India, agricultural sector continues to employ the largest share of the workforce, most of whom are self-employed small and marginal farmers. However, Abraham (2024) points out that there is a structural shift within the agricultural sub-sector. The share of the workforce engaged in the "crop" sub-sector has declined by 75 percent. Using Abraham's findings, Table 6.4 illustrates a sharp increase in employment in the livestock sub-sector – from just 3 percent in 2011–12 to 14 percent in recent years. Employment in mixed farming has also risen notably, from a mere 2 percent to 10 percent. Further, a significant share of female workers – around 42 percent – continue to be classified as "helpers in household enterprises," indicating that the responsibility of managing farm and livestock activities is disproportionately borne by women engaged in unpaid family labour.

It is therefore important to examine the indicators of non-farm employment within the self-employment category in both rural and urban India. Non-farm activities primarily include manufacturing, construction, trade, and services. As shown in Table 6.2, employment generation has been heavily concentrated in the informal sector, especially among establishments hiring fewer than 20 workers. The Annual Survey of Unincorporated Sector Enterprises (ASUSE) data offers valuable insights into these sectors, covering manufacturing, trade, and service. Although construction is excluded from ASUSE, it will be addressed separately in the section on casual employment.

The ASUSE date estimates that number of establishments under the unincorporated manufacturing, trade, and other services sector increased from 6.50 crores in 2022 –23 to 7.34 in 2023-24, of these, 27 percent are in manufacturing, 31 percent in retail trade, and 42 percent in services. Further, 95 percent of the establishment were proprietary units with 3.7 percent started by SHG's. These SHG units were most prominent in Andhra Pradesh, Chhattisgarh, Jharkhand, and Odisha having more than 10 percent of the establishment owned by SHG groups.

The ASUSE data also provides insights into the locations of where the unincorporated establishment operate. Around 38 percent of Own Account Establishments (OAEs) function within household premises, the majority of them

Table 6.4: Employment Distribution in Sub-sector of Agriculture and Allied Sector in Percentage

Sub-sector in agriculture and allied activities	2011–12	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Growing of crops	94.53	90.77	89.43	89.16	86.98	82.28	76.28	74.34
Rearing of animals	2.85	4.88	6.03	6.39	7.60	9.67	14.51	14.14
mixed farming	1.55	3.28	3.46	3.54	4.44	6.80	8.17	9.68
Forestry, logging and related service activities	0.30	0.35	0.34	0.25	0.42	0.36	0.36	1.14
Fishing	0.77	0.72	0.75	0.67	0.57	0.90	0.68	0.71
Total agriculture	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Calculated by Data Centre from PLFS, Knowledge Resource Centre, Azim Premji University, Bengaluru*

situated in low-income residential areas of urban centres. This underscores the growing significance of home-base workers in urban India.

Another notable livelihood segment on which many low-income families rely – both in urban and rural India – is street vending. According to ASUSE data, 16 percent of all establishments are engaged in street vending, translating to an estimated 1.16 crores street vendors both in the rural and urban India. Within urban areas alone, street vending remains one of the most prominent forms of self-employment, engaging nearly 50 lakh workers, largely due to its low entry barriers and accessibility for migrant workers. As highlighted earlier, the government has extended institutional support to this sector through the PM SVANidhi scheme, which has disbursed loans amounting to ₹13,797 and reached approximately 68 lakhs street vendors (PIB 2025).

However, despite such financial inclusion measures, street vendors continue to face frequent evictions and harassment, often justified under urban "beautification" drives and Smart City initiatives (Hindu 2025). Therefore, beyond the provision of credit and financial assistance, a crucial policy priority is the effective implementation of the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014, to ensure legal protection and livelihood security for workers in this vulnerable segment of the urban informal economy.

A crucial question, however, is whether these enterprises provide sufficient income security for lower-income groups. The ASUSE data, which estimates the annual Gross Value Added (GVA) per establishment, offers a useful benchmark for assessing their economic viability. The overall annual GVA per establishment stands at ₹2,45,685.

The data from Table 6.5 indicates an overall improvement by 5.62 percent compared to the previous year. The estimated average monthly income per enterprise stands at ₹15,732, which is less than statutory minimum wage in some of the states.

Similarly, the GVA of OAE is estimated at ₹1,13,835, which translates to ₹9,486 per month, again lower than the minimum wages threshold in many regions. In contrast, for Hired Workers Enterprises (HWE) report earnings around ₹81, 566 per month, reflecting a significant disparity in earning between enterprise types.

While the ASUSE dataset does not provide a gender-wise disaggregation of self-employed workers, insights can be drawn from PLFS, which offers gender-specific data on incomes in self-employment.

The data from Table 6.6 clearly indicates that male earnings in both rural and urban areas have increased at a faster rate compared to female earnings, resulting in a widening income gap; on average male wages are ~3 times of female wages in both regions. As discussed earlier, women-led enterprises frequently struggle to generate earnings even equivalent to the minimum wages. Banerjee and Duflo (2012), in Poor Economics, describe such enterprises as examples of "buying a job", where individuals pursue self-employment out of necessity rather than because the enterprise is economically viable. This highlights that a critical challenge for Non-government Organisations (NGOs) and NRLMs working with SHG members is to create viable business models that can raise incomes form these ventures beyond minimum wage levels. Creating sustained market demand requires interventions far larger in scale than the typical micro-level efforts of financing and training women for local markets. Thus, policy level intervention must be envisioned at a broader, macro scale to support

Table 6.5: Annual GVA per Establishment

	Manufacturing	Trade	Other Services	All
ASUSE2022–23	202323	245288	257804	238168
ASUSE 2023–24	188789	273778	262352	245687
Growth (%)	-6.69	11.6	6.13	5.62

Source: Calculated from PLFS 2023-24

Table 6.6: Average Gross Earnings (in ₹) from Self-employment Work in Current Weekly Status during the Survey Period July–September, 2020–23

Nominal Wages	Rural		Urban	
	Male	Female	Male	Female
July–September2023	13269	4712	22371	8600
July– September 2022	14376	5071	20427	7899
July– September 2021	10703	4900	17620	7439
July– September 2020	9829	4622	15903	7167

Source: PLFS 2020–24

enterprises – especially those led by marginalised and vulnerable groups, who often lack the training, resources, and networks needed to effectively navigate and compete in wider markets.

6.4. Casual Labour: Trends and Policy Gaps

One of the encouraging trends noticed in the PLFS 2023–24 data is the gradual decline in the share of casual labour – from 25 percent in 2017–18 to 20 percent in 2023–24. This is a positive development, especially given the high incidence of poverty among casual workers. Studies show that informal wage incomes tend to be lower than incomes from self-employment, and that scheduled caste/scheduled tribe categories (SC/ST) are disproportionately represented in informal wage work, while general caste groups are overrepresented in the highest earning salaried categories (Rosa and Surbi 2025). Given the fluid nature of the Indian labour market – where labour workers frequently move between casual labour, self-employment, and formal employment – this decline in casual labour is a welcome sign. It indicates a gradual shift towards more stable and secure income streams for households.

However, data from successive PLFS rounds indicates that the construction sector continues to employ the largest share of informal wage labour, with nearly 80 percent of its workforce engaged as informal casual workers. Further, as highlighted by the Economic Survey 2025, the construction sub-sector has been performing exceptionally well, recording a growth of 15 percent, well above its pre-pandemic levels and contributing 7.5 percent to the GVA. This expansion has been largely driven by increased public capital expenditure, substantial private investment in large-scale infrastructure development projects across the country, and high housing demand in both rural and urban India. Unfortunately, this impressive growth has not translated into long-term employment stability for its work force (construction sector share in regular employment is merely 5 percent). Consequently, the bulk of workers remain confined to informal, casual wage arrangements, characterised by unstable verbal contracts mediated through sub-contractors, low and irregular wages, precarious working conditions, and a near-total absence of social protection. This persists despite the existence of the Building and Other Construction Workers (BOCW) Act, 1996, which was designed to ensure welfare and safety for this vulnerable workforce.

The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 is a remarkable piece of legislation initiated by sustained efforts of the workers and unions in the 1980's and 1990's. The Act incorporates a self-financing mechanism levying cess on construction projects and mandates the establishment of state-level welfare boards responsible for administering schemes for construction workers. As of 2024, 5.65 crores construction workers have been registered with their respective state boards – representing nearly 80 percent of the sector's workforce. Various state boards have cumulatively collected cess funds amounting to ₹1,12,331 crores, of which ₹64,193 crores has been spent. This still leaves an unspent balance of ₹65,967 crores (Rajya Sabha unstarred question, 2024).

The large unspent amount has become a source of contention, prompting several trade unions and civil society organisations to petition the Supreme Court for corrective action. As a result, many schemes have been centralised, leading to a significant reduction in the autonomy of the states to utilise cess funds for the welfare of construction worker (Jain 2022). The Act has potential to move beyond fragmented welfare measures and contribute to the creation of more secure and structured employment for construction workers, as well as benefiting the construction companies.

Some potential measures include transforming the welfare board into a tripartite body with representatives from workers, employers, and the government. This structure would facilitate more balanced negotiations on working conditions and wages, ensuring that the interests of all stakeholders are considered. A phased approach can be adopted to ensure that all construction worksites employ only registered workers – starting with a 20 percent requirement and gradually moving to full compliance within five years. Simplifying the registration process for workers, especially newcomers at worksites, would also ensure that construction companies start registering their workers in the board, instead of the unions. This will ensure that only genuine workers who meet the 90-day work criterion are enrolled. Although individuals constructing their own houses below ₹10 lakhs are exempted from the act, homeowners can still be incentivised to hire only registered workers by offering accident coverage for a nominal fee, payable through an online portal using the worker's registration number. Such measures would provide added security for both workers and employers.

6.5. Regular Employment: Formality, Stability, and Emerging Vulnerabilities

Regular wage or salaried employment has traditionally been regarded as formal employment – work that is secure, provides stable earnings, and is linked to social security benefits, thereby aligning closely with the principles of decent work. In particular, the aspirations of young people are closely tied to the availability of formal sector jobs that offer social security benefits such as provident fund contributions, health insurance, and paid leave.

According to PLFS data, there was a slow rise in the share of regular employment in the pre-pandemic years. However, this trend reversed in the post-pandemic period. While regular jobs remain a key avenue for achieving decent work, recent trends reveal a worrying rise in contractualisation within the category of regular employment. According to Annual Survey of Industry (ASI) contract jobs rose from approximately 28 percent in 2011 to nearly 42 percent in 2024. This growing prevalence of contractual employment raises critical concerns about the quality and stability of regular jobs. While many workers may be classified as holding regular, formal jobs, a significant number are employed without long-term contracts, wage protection, or access to legally mandated social security benefits.

It is evident from Table 6.3 that the "good jobs" exist overwhelmingly within regular employment. These jobs not only provide stability in one's life but also cater to people's aspirations, ensuring a good quality of life through access to formal financial institutions and overall well-being.

Table 6.7: Mean Earning in Regular Wage Workers

Mean earning of Regular wage workers	
Benefits	India
With written contract and benefits (₹)	31718.8
With either written contract or benefits (₹)	20936.2
With neither written contract nor benefits (₹)	10879.3

Source: Calculated from PLFS 2021–22

This clarity is further reinforced in Table 6.7, which shows that regular work accompanied by a written contract and full social security benefits – including health coverage and pension provisions – yields earnings that substantially exceed living-wage benchmarks. Even in the absence of a written contract, the earnings are still at least above the minimum wage. However, without a written contract or any associated benefits, the earnings fall below the minimum wage level.

Therefore, in any labour policy framework, the primary objective should be to encompass all workers within a written contract ensuring that employers provide social security benefits to their workforce. As depicted in Figure 6.3, while 22 percent of workers in India are engaged in regular employment, 58 percent of them do not have a written contract. Additionally, 47 percent do not receive paid leave, and 53 percent do not have any form of social security benefits.

The National Commission for Enterprises in the Unorganised Sector (NCEUS) defines informal employment as work in which employees are not provided any social security benefits by their employer. This means informal workers may be engaged in either formal or informal enterprises, as long as they lack access to social security benefits. Figure 6.3 reveals that 53 percent of the workforce does not receive any form of social security benefits, which implies that only 47 percent of the regular workers can be considered part of the formal sector. Approximately only 11 percent of the workforce is engaged in formal employment, while the majority, accounting for around 89 percent, remains informal in nature. Thus, it becomes imperative to formulate a labour policy that brings informal workers within the ambit of regulation and protection associated with the formal sector.

Thus, employment creation has largely occurred in the informal sector. The ASUSE survey records the emoluments paid to hired workers in unincorporated establishments, capturing both formal and informal workers within these units. The data presented below reflects the monthly compensation received by workers in such establishments.

Table 6.8: Emolument Paid to Hired Workers in Unincorporated Establishments

Sectors	Rural	Urban	Rural and Urban
Manufacturing	9436	12082	11238
Trade	9374	11545	11101
Other services	10881	13095	12395
All	10175	12400	11756

Source: ASUSE 2023–24

Compared with the ASUSE 2022–23 round, hired workers experienced an average increase of 13 percent in their compensation (at current price). Among the sectors, workers hired in

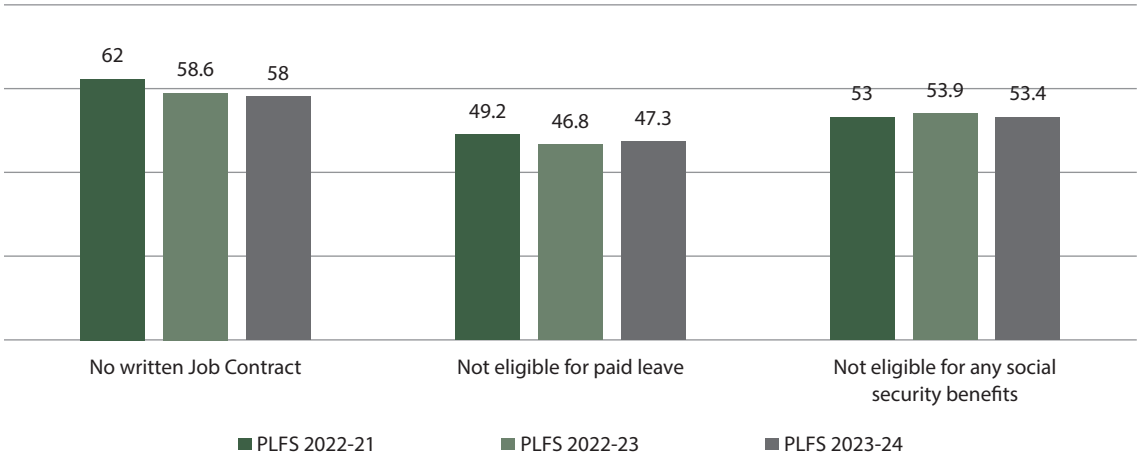

Figure 6.3: Percentage of Regular Wage/Salaried Employees in Usual Status (PS+SS)

Source: PLFS 2022–24

Table 6.9: Monthly Emoluments State-wise

Rural and Urban	States	Monthly emoluments
Manufacturing	Kerala	15032
Trade	Kerala	14811
Other services	Gujarat	16819
All	Telangana	14699

Source: ASUSE 2023–24

manufacturing recorded the highest gain at 16.10 percent. Additionally, hired workers in the rural areas have gained about 17.75 percent more than the hired worker in the urban areas who have gained 10.31 percent.

The ASUSE data on unincorporated establishments also provides a state-wise breakup. This can offer useful insights into migration, since workers typically move to states that offer better wages and more stable employment opportunities. According to the data, Kerala pays the highest wages in both the manufacturing and trade sectors. Gujarat offers the highest wages in other services. Overall, Telangana is reported to be paying the highest which is closely followed by Gujarat.

Another important aspect of employment in the formal sector is the growing reliance on contract workers instead of permanent workers. According to the Annual Survey of Industries (ASI) 2023–24, the share of contract workers has reached an all-time high of 42 percent. Contract workers are not employed directly by the employer, but by contractors on short term basis and work alongside the permanent workers on the shopfloor, reflecting a clear trend of informalisation within the organised sector. The main difference between the permanent and contract workers lies in employment security and access to benefits: contract workers can be fired easily, face significant job instability, and receive far fewer social security provisions compared to directly employed workers. Thus, direct employment has been declining steadily year after year. In 2023–24, the proportion of contract workers reached its highest level at 42 percent.

6.6. Workers Nominal and Real Wages

One of the key development goals is to assess whether workers' incomes have risen in real terms after adjusting for inflation. The aim is for workers to earn a living wage that enables a decent standard of living. In essence, the true measure of economic growth is its ability

Table 6.10: Nominal and Real Wages by Status of Employment

Nominal and Real Wage Rates						
Regular worker	**Male**			**Female**		
	2017–18	**2023–24**	**% Change**	**2017–18**	**2023–24**	**% Change**
Nominal wage	17299	22092	27.70	13817	16498	19.40
Real wage	12665	11858	-6.37	10116	8855	-12.46
Causal worker	**Male**			**Female**		
	2017–18	**2023–24**	**%Change**	**2017–18**	**2023–24**	**% Change**
Nominal wage	277	450	62.45	175	296	69.14
Real wage	203	242	19.21	128	159	24.21
Self-employed	**Male**			**Female**		
	2017–18	**2023–24**	**%Change**	**2017–18**	**2023–24**	**%Change**
Nominal wage	12913	16007	23.96	5935	5497	-7.37
Real wage	9454	8591	-9.12	4348	2950	-32.15

Source: Economic Survey 2023–24

to translate into improved living conditions for workers – reflected most clearly through sustained increases in real wages.

According to the Economic Survey 2023–24, nominal wage for male regular worker has increased by 28 percent, while female regular workers saw a much lower rise of only 19 percent, reflecting persistent gender bias and wage discrimination within the formal sector. However, real wages declined for both male and female workers in the regular workforce – by 6 percent for men and by an even sharper 12 percent for women. In contrast, casual workers experienced improvements in both nominal and real wages. Yet, their wage levels remain extremely low. For instance, a male casual worker putting 26 days of work in a month earns only ₹7202 – significantly below the minimum wage. While nominal wages for male and female casual workers rose by 62 percent and 69 percent respectively, the wage levels in the casual work category has to move beyond the minimum wage level. This underscores the need for targeted policy interventions; minimum wage notifications alone are insufficient to improve incomes in a sector like construction, which has the capacity to pay more, but remains highly informal, as discussed earlier. In the self-employment category, nominal wage for men increased by 24 percent but the real wage levels have fallen by 9 percent. The major challenge, as pointed out earlier, is the situation of women in self-employment, where nominal earnings have declined by 7 percent and real incomes have fallen by 32 percent. The fall in real wage can be attributed to pandemic. It remains to be seen in the coming years whether the real wages recover – potentially aided by policy changes such as GST reductions that could in turn boost consummation demand.

6.7. From Social Welfare to Social Security: Ensuring Inclusive Protection for all Workers

The informal sector, which employs the vast majority of the Indian workforce, is largely addressed in the social security code through the lens of social welfare schemes rather than social security provisions. This distinction is critical. Social welfare schemes imply state-sponsored schemes, not entitlement-based. This argument is important as many civil society organisations work on entitlements for social welfare schemes. On the other hand, social security entails rights-based entitlements that ensure economic protection in the long term. Once the budgetary allocation is withdrawn, these schemes expire, offering little confidence or incentive for workers to contribute. Consequently, welfare schemes are often perceived as temporary handouts rather than enforceable worker rights. India needs to transition from social welfare schemes to social security schemes for all workers in both formal and informal sectors.

Currently, India's two major social security institutions – the Employee State Insurance Scheme (ESIC), and the Employee Provident fund Organization (EPFO) – align with the Social Security (Minimum Standards) Convention, 1952 (No. 102). However, the existing policy architecture excludes many young workers, irrespective of their employment status (self-employment, casual, and regular) without social security benefits. Workers employed in small enterprises or institutions with fewer than 20 employees are excluded from EPFO or ESIC coverage. At the same time, many workers in the modern sectors such as health, education, research, information technology, finance services, and real estate – especially those engaged on short-term or long-term contracts in start-ups – are excluded because of wage ceiling in these schemes.

According to the Economic Survey 2023–24, India's overall score on the Global Pension Index is 44 (Grade D) – lowest among all countries assessed. The Mercer Global Index evaluates systems on three pillars: adequate, sustainability, and integrity. India's low score of 34 percent in "adequate" category highlights the limited coverage of pension schemes: only around 5 percent of the population is covered under any of the pension schemes, and 80 percent of these subscribers are concentrated in the Atal Pension Yojana (APY). However, 94 percent of APY accounts are linked to the minimum pension slab

of ₹1,000 per month. Such low payouts offer no incentive for workers to enroll into the scheme, as the returns at retirement remain meagre. Thus, even the best contributory pension scheme targeting informal-sector workers falls short of offering a dignified retirement plan for workers.

This year the government approved the Unified Pension Scheme (UPS) for government employees. The scheme offers a family pension, a guaranteed pension amount, and more importantly it assures a pension equal to 50 percent of the average basic pay earned during the 12 months preceding retirement date. A similar rights-based pension standard should be extended to all workers irrespective of whether they are in formal or informal employment. For informal workers, the pension should be pegged at no less than half of the prevailing minimum wage. The minimum contribution should be thus fixed to the minimum wages so that it can be revised periodically as per revisions of minimum wage notifications.

All employers hiring between 5 and 20 workers should be brought under the ESIC and EPFO frameworks by amending the respective social security Acts to remove wage ceiling and employee-employer relationship requirements. The organisations capability of both the institutions should be enhanced both in terms of technology and manpower to manage the large number of new registrations so that there is efficient coverage and compliance. Such reforms would also support the effective implementation of the Minimum Wages Act. For informal sector workers, a practical starting point is registration with the labour department through a dedicated portal with a unique code – an approach already initiated through the E-Shram platform. For all registered informal workers, a base cover like accident insurance cover should be ensured, (which is already available through E-shram), along with access to a contributory medical insurance scheme and a pension fund. At the same time, all employers who engage workers in private households – such as domestic workers, drivers, security personnel, and home-based helpers – should be able to use the portal to register their workers and ensure they receive medical and pension benefits.

India's current demographic advantage will inevitably evolve into an aging population in the coming decades. Over the next two decades, the present workers in the age group of 25-35 will transition into the prime of their working life. Without a robust social security framework in place, this demographic transition may lead to a serious social and economic crisis. As traditional joint families continue to give way to nuclear households, the absence of adequate pension coverage and health insurance will leave future elderly workers with limited support and few options. Many will be forced to fend for themselves in old age. Without a strong and inclusive social security framework, the nation risks facing a significant social and economic crisis in the future. Transitioning from social welfare schemes to robust, rights-based social security systems is crucial to building a fair and sustainable framework that protects every Indian worker across sectors in the coming years

6.8. Rethinking Labour Policy in the Age of Technological Disruption and Informalisation

In the 21st century, the very nature of employment is undergoing a fundamental transformation. During India's initial phase of industrialisation, there was a broad consensus on the nature of "regular" jobs – stable employment with job security, supported by institutional mechanisms such as the ESIC and EPFO. This framework was built on the assumption that, as industrialisation progressed, the economy would naturally shift towards formal, long-term employment. However, with technological progress and an evolving management practices in production, the traditional 20th-century model of stable, long-term employment has become increasingly obsolete. One example of this is the emergence of gig economy, where digital platforms and algorithms govern the labour process. The rise of contract workers both in manufacturing and service sectors, largely comprising migrant workers, poses a significant

challenge to the formalisation of India's labour market. Compounding this is the absence of a clearly defined employer–employee relationship in much of the informal economy, which perpetuates job insecurity and excludes majority of workers from the protection of labour laws. This shift has led to the emergence of many non-standard forms of employment, often falling outside the preview of existing regulatory frameworks. In this rapidly evolving landscape, there is an urgent need to rethink and reimagine labour laws so that they reflect on-the-ground realities. The looming scenario of Artificial Intelligence (AI) promises to revolutionise our world but also threatens to disrupt labour markets in unprecedented ways. This might have a huge effect on formalising the informal. Already, major industries in both manufacturing and service sectors are reducing their workforce as AI-driven automation reshapes production and service delivery. Smaller enterprises are also increasingly relying on technology to be more efficient and reducing their dependence on human labour. As a result, the prospects of traditional formal labour relations are fast eroding. Thus, if the labour policy does not adopt a futuristic view that anticipates the scale of disruption AI may cause in the labour market, India risks deepening socio-economic inequality, widening the poverty gap, and leaving behind large segments of workers who may lose their livelihoods due to technological advancement.

Given the rapidly changing labour market environment, labour policy should reflect on how it is going to impact the informal sector, where majority of India's workforce is employed. Yet, existing labour laws, including the recent four labour codes, continue to focus primarily on regulating the formal sector, which represents less than 10 percent of the workforce. Within these labour codes, informal sector has been touched upon only through the social security codes. While wage code envisages minimum wage coverage to informal sector workers, it lacks implementation mechanism, rendering the provision largely ineffective.

Legally, the absence of a clearly defined employer–employee relationship has been the main barrier to developing a regulatory framework for the informal sector. However, the rapid expansion of digital payment through UPI and near-universal access to bank accounts have revolutionised financial transaction. These developments now make it possible to track payments in real time and digitally link workers with multiple employers. Thus, it is now possible to reimagine employee-employers' relations based on a task or transaction-based model, allowing for multiple employers across both the formal and the informal sector – particularly within the gig economy. Perhaps, the time is ripe to think of a new regulatory framework keeping in mind the rapid change in nature of employment and technology. Rather than viewing technology as a disruptor, it should be used as a tool to advance the well-being and rights of workers.

To improve working condition for informal workers and to promote decent working conditions, several measure can be envisioned;

- Establish sector-based tripartite work councils for informal sector and gig workers to negotiate collective agreements on wages, working hours, and workplace conditions. For specific trades like domestic workers, home-based workers, and head-loaders, area-based work councils can be formed with representation from employers, workers, and labour department officials
- Decentralise grievance-redressal cell to the block and ward levels to enable speedy resolution of dispute, especially for informal workers, in cases involving amounts ranging from ₹5000 to ₹2.5 lakhs
- Mandate digital wage transfers for all registered organisations, including establishments empliying more than five workers, to ensure transparent transactions and effective compliance with minimum wage regulations.
- Introduce minimum earning standards for different categories of work such as platform-based services, delivery apps, piece-rate work, and task-based employment
- Facilitate direct crediting of social security contributions into informal workers' accounts using existing digital payment systems and bank infrastructure

To conclude, the transient nature of employment, particularly in the informal and gig economy, is marked by a high degree of labour mobility, including large-scale internal

migration. This fluidity necessitates a rethinking of how labour laws are conceived and applied. The existing policy structure, which primarily caters to formal sector workers, must undergo a paradigm shift to include the vast informal workforce. What is needed is a comprehensive regulatory labour framework that ensures social security, job security, and decent working condition for all focusing on improving the life and dignity of every worker.

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Rural-urban Migration and Urban Livelihoods in India

7

Chetan Choithani

7.1. Introduction

At the second edition of *Startup Mahakumb* held in Delhi during 3-5 April 2025, Union Minister of Commerce & Industry, Piyush Goyal, took a hard look at India's much touted startup companies. Comparing the Indian startup ecosystem with that of neighbouring China, he remarked:

> What are India's startups doing today? We are focused on food delivery apps, turning unemployed youth into cheap labour so that the rich can get their meals without moving out of their house. And against that, what does a Chinese start up do? Work on developing electric mobility, battery technologies and with that they are today dominating the electric mobility system. We are very proud of what India has done. But are we the best in the world as yet? Not yet. Should we aspire to be? Or are we happy to be delivery boys and girls?[1]

Although the Minister's provocation was meant to encourage India's young entrepreneurs to innovate at the upper echelons of cutting-edge technologies and build globally competitive enterprises, it also underlined a growing public policy concern: that of persistently low growth of quality jobs in an otherwise rapidly expanding economy. The Economic Surveys of 2023-24 and 2024-25, while noting positive transformations in India's labour market landscape over recent years, had emphasized the long-standing challenge of creating decent livelihoods for the country's growing workforce (Government of India, 2024, 2025a). Over the past few decades, India has witnessed rapid economic growth and has emerged as the fastest growing major economy of the world (World Bank, 2025b). Yet, high and sustained economic growth has not translated into decent jobs for a large majority of country's populace. There is, as Kannan (2024, p. 349) has recently observed, "a 'great disconnect' between growth and decent employment" in India.

This disconnect between economic growth and decent employment also underlies the distinctive nature of India's ongoing rural-urban transition. India's recent growth has been urban-centric, prompting millions of former farm workers facing agrarian decline to move to cities

for alternative jobs. But urbanisation levels have not expectedly increased. This is because India's urban-led economic growth is driven by capital- and skill-intensive businesses and services that have created decent jobs for a small section of the highly educated and skilled workers, while precluding realistic opportunities for low-skilled rural workers – who comprise a bulk of India's labour force – to successfully transition to urban modes of life and work (Choithani et al., 2021).

A large majority of rural-urban migrants find work in precarity-laden informal sector taking up jobs as construction workers, domestic labor, street vendors, waste collectors and so on. These informal urban jobs are characterised by long-working hours, low-wages, lack of job security, and absence of employment benefits. Moreover, these migrants are also often excluded from the state-run social protection schemes as these benefits are tied to domicile status. Many migrants who move across states also face exclusion and occasional violence on account of linguistic and cultural differences. These act as barriers for migrants to carve out permanent urban lives. India's policy vision increasingly sees cities as "engines of growth" and emphasizes investment in urban infrastructure to reap the agglomeration benefits cities provide (NITI Aayog & Asian Development Bank, 2022, p. 3). But the livelihoods needs of migrant informal workers who contribute significantly to India's increasingly urban-centric economy are inadequately understood and recognised.

Against this background, this chapter looks at the rural-urban migration and urban livelihoods, with a focus on low-skilled migrant workers engaged in the informal sector. It places migration and livelihoods in the broader context of structural transformation and rural-urban transition in India. It shows that economic change and ensuing rise in rural-urban migration is not accompanied by a policy environment that facilitates decent livelihoods for informal migrant workers in cities. This neglect is a function of policy paradigm that sees rural-urban migration involving low-skilled workers as undesirable, but it is also a result of inadequate understanding of the current magnitude of rural-urban migration in India. The chapter argues for integrating the rapidly increasing migrant work force in India's urban imagination to promote inclusive development.

7.2. Dynamics of Structural Transformation and Livelihood Change in India

Following the liberalization reforms of the early 1990s, India has witnessed a period of sustained economic expansion. Between 1991 and 2023, the average annual gross domestic product (GDP) has been upwards of 6 percent (World Bank 2025a), enabling the country to break away from the sluggish growth trajectory that characterised Indian economy in the first few decades after independence (Kar and Sakthivel 2007). This high growth is also associated with increase in prosperity and decline in poverty (Datt *et al.* 2020; Panagariya 2004).

Economic reforms also accelerated the structural transformation of Indian economy. The non-farm economic activities have assumed an increasingly central role in India's overall economic output, while the primary sector has gradually receded into the background. In 1960, over 40 percent of India's GDP was accounted for by agriculture and allied activities which declined to 28 percent by 1990–91. As per latest data, farm sector contributed less than one-sixth of country's income in 2024, whereas the industry and services accounted for a bulk of economic output (World Bank 2025c, 2025d, 2025e). Much of the non-farm economic activities are urban based, with cities and towns contributing nearly 60 percent to India's total GDP (NITI Aayog and Asian Development Bank 2022).

However, the nature of India's structural transformation does not align with the established pattern. Historically, structural transition that shifts economic output from rural-farm to urban-nonfarm sectors also leads to permanent rural-urban migration and increase in urbanisation as populations respond to economic change. This has been observed in the experience of countries in West Europe,

North America, and East Asia (of which China is a recent example) where these macroeconomic shifts were associated with increase in migration and urbanisation (Nijman 2019). In India, the diminishing share of agriculture in GDP has not resulted in commensurate decrease in rural population. Indeed, despite agriculture now accounting for a miniscule proportion of India's GDP, over 60 percent of country's population still resides in rural areas (Figure 7.1).

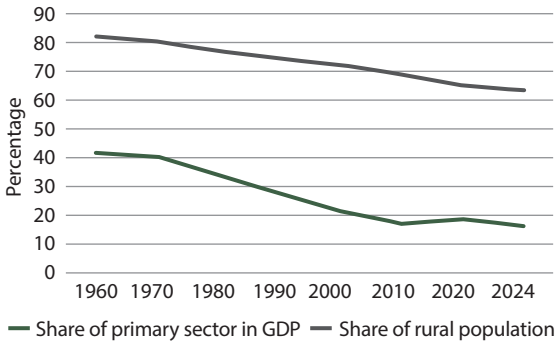

Figure 7.1: Structural Transformation in India

Source: World Bank (2025e).

A key reason for this distinctive pattern of structural transformation is that India's urban-led economic growth has not generated a sufficient expansion of decent non-farm jobs in the cities, limiting the scale of permanent rural-urban population shifts. In 2021–22, agriculture still employed nearly half of 500 million strong labour force, and the share of labour-intensive manufacturing that tends to absorb low-skilled rural workers has been stagnant at little over 10 percent over the past 40 years (Table 7.1). Thus, the growing significance of non-farm economic activities in India's national income is not matched by the corresponding rise in non-farm livelihoods. As the recent State of Working India 2023 report noted: "Since the 1980s, non-farm output consistently grew much faster than non-farm employment resulting in a steady fall in the employment elasticity"(Azim Premji University 2023, p. 27).

India's structural transformation has bypassed manufacturing and economic output now increasingly depends on service sector. But this services-led economic growth is driven by capital and skill-intensive services that have generated well-paying quality jobs for a very small section of highly educated and skilled workers in large cities. India's much-heralded information technology (IT) sector is an example which contributes 7.5 percent of the country's GDP but employs only 5.4 million people (little more than 1 percent of the workforce) (Ministry of Commerce and Industry 2025). At the same time, a significant share of rural populations – lacking the education and skills needed to participate in this new economy – has been unable to share in the gains of India's economic boom.

It is not that the urban non-farm employment for low-skilled workers has not grown. Indeed, rapid economic growth has led to rise in demand in labour-intensive non-farm sectors, such as construction which now employs nearly 70 million workers (Government of India 2024, p. 274). There has also been employment growth in the service sector, which absorbs nearly 40 percent of workers (Table 7.1). But much of this job growth has occurred in the informal sector of the economy. There has been a serious lack of policy thinking to improve the share of formal jobs in secondary and tertiary sectors in cities, particularly for low-skilled workers.[2] Employment data from nationally representative surveys show that 90 percent of India's workers were employed in the informal sector in 2021–22, and there was barely any change in the share of

Table 7.1: Trends in Employment by Broad Sectors in India (Percentage of Workers)

	1981–82	1991–92	2001–02	2011–12	2021–22
Agriculture	71.51	67.63	62.24	53.92	49.37
Manufacturing	10.82	11.09	11.70	13.25	12.15
Services	17.68	21.29	26.06	32.83	38.48
Total	100.00	100.00	100.00	100.00	100.00

Source: Author's calculations based on Reserve Bank of India's (RBI's) KLEMS (2024) database

informal employment between 1999–2000 and 2021–22 despite rapid economic growth in this period. This also means that formal employment grew only marginally in this twenty-year period (Figure 7.2). The informal jobs, while providing a buffer, have prevented rural populations from building urban lives.

It is important to note that although the farm sector remains the largest employment provider, rural livelihood trajectories are rapidly decoupling from agriculture. The high man-land ratios mean that agriculture in India has always suffered from the challenge of disguised unemployment. Landholdings are generally small and have witnessed further fragmentation over the years. Average landholding in India declined from 2.28 hectare in 1970–71 to 1.07 hectares in 2015–16 (Ministry of Agriculture 2019). Climate change has compounded the challenge of smallholder farming. For instance, a study shows that warming temperatures contributed to drop in wheat yields by over 5 percent between 1981 and 2009 (Gupta *et al.* 2017). Structural economic change has further diminished the significance of agriculture as a primary source of income over the past few years. The combined effects of these pressures are manifested in massive shifts of employment out of agriculture. Job losses in agriculture are estimated in the range of 40 to 63 million workers between 2004–05 and 2017–18 (Choithani *et al.* 2021; Mehrotra 2019; see Figure 7.3). Given that livelihoods are constructed jointly in the context of the household in rural India, the effects of these shifts out of farming potentially also extend to the families of farm workers. Assuming an average household size of 5 persons, even the lower estimate of 40 million fewer farm jobs means that 200 million people are affected in this livelihood transition underway in India (Choithani *et al.* 2021).

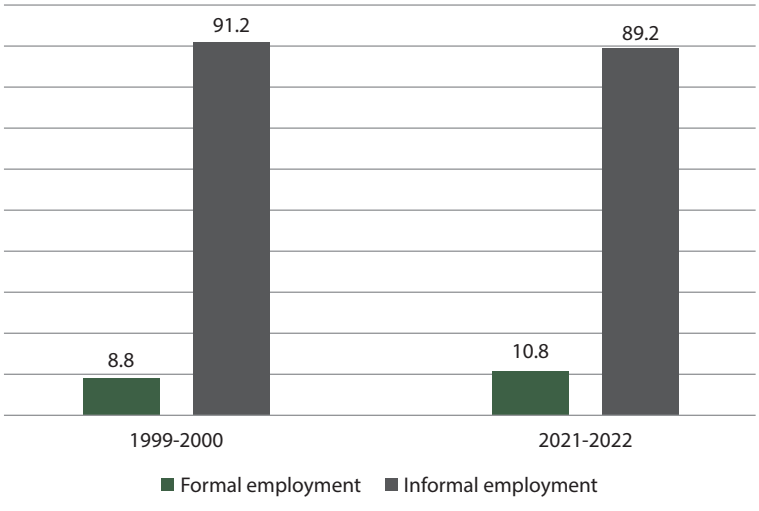

Figure 7.2: Share of Formal and Informal Employment in Total Employment (Percentage of Workers Aged 15+ years)

Source: Kannan (2024, p. 850) based on National Sample Survey and Periodic Labour Force Survey data

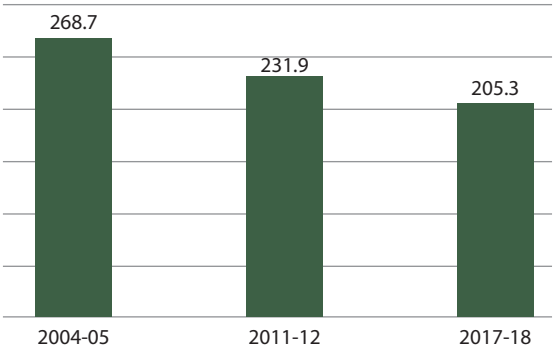

Figure 7.3: Number of Agriculture Workers (in millions)

Source: Mehrotra (2019, p. 7) based on various rounds of National Sample Survey.

7.3. Rural-Urban Migration, Informality and Urbanisation

In the period following independence, India has seen two major work-related internal migration streams involving low-skilled workers who constitute a large chunk of labour migrants. First was the rural-to-rural migration in the 1970s and 1980s after the Green Revolution that generated significant employment in farming in northwestern states of Haryana and Punjab. The second was the rural-to-urban migration starting in the 1990s following the economic reforms. This is not to say that rural-urban migration was absent prior to the 1990s. In fact, rural migrants fuelled the growth of India's large metropolitan centres of Mumbai, Delhi, Kolkata, and Chennai. Similarly, rural-rural migration for farm work in the Green Revolution frontiers of Punjab and Haryana continues. But agrarian decline and urban-centric economic growth of post-1990s

India means that rural-urban migration has gained heighted significance (Choithani 2017, 2022).

A key characteristic of rural-urban migration involving low-skilled workers is that much of it is *circular* which is defined as a "a temporary move from, followed by return to, the normal place of residence" (Deshingkar and Farrington 2009, p. 1). This circular migration is the reason why labour migrants are variously described as "unsettled settlers" (De Haan 1997, p. 919) and "footloose labour" (Breman 2020, p. 901). This means that migrants work and earn in cities while remaining firmly connected with their natal villages. Work destinations depend on existing social networks, but they are not fixed and change in response to economic opportunities. Indeed, the shift from earlier patterns of predominantly rural-rural to increasing rural-urban migration reflects broader changes in economic landscape. The preferred urban destinations of migrants have also evolved in line with the shift in employment opportunities. Another important feature of domestic labour migration in many parts of India is that it is predominantly the men who move, while the women face socio-cultural restrictions on their mobility and stay behind (Choithani 2020; Nijman *et al.* 2025; Tumbe 2012).

The key source regions of rural outmigration in India are the less developed northern and eastern states including Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, and West Bengal. In contrast, the cities and towns of more developed western and southern states such as Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu serve as key destination hubs for migrant workers. Westen Indian cities such as Surat in Gujarat and Mumbai in Maharashtra have long attracted labour migrants. Additionally, the large metropolis of Delhi and Kolkata have historically drawn rural migrants and continue to remain popular destinations, particularly for workers from high-outmigration states such as Uttar Pradesh and Bihar.

Recent evidence suggests a growing southward shift in labour migration. Southern cities such as Bengaluru, Chennai, Hyderabad, and Kochi have seen rapid economic expansion in the post-1990 period and are emerging as important urban geographies of internal migration as they offer more regular employment, higher incomes, and better labour safeguards (Choithani *et al.* 2021). This shift is partly occurring at the expense of older, established migrant hubs in western India. A recent study analysing return migration during the two waves of Covid-19 by innovatively using mobile visitor location registers and roaming data found that that a substantial share of migrants who left cities in western industrial states of Maharashtra (including Mumbai) and Gujarat did not return after the pandemic subsided. Their harsh experience during the Covid-19 crisis prompted many to redirect migration routes towards southern states of Karnataka, Tamil Nadu, and Kerala (Nizam *et al.* 2022; also see Choithani and Khan 2024 for an account of southward shift in labour migration).

Domestic circular labour migration has historically been central to rural livelihoods in India (De Haan 2002; Tumbe 2018). But recent research shows that internal migration has accelerated to unprecedented levels in the past few decades which is linked also with significant decline in agrarian employment (Choithani *et al.* 2021; Government of India 2017; Nayyar and Kim 2018). Official data sources, however, do not capture the real magnitude of migration as much migration occurs outside the formal structures. Key migration data sources, such as population census and nationally representative sample surveys, are designed primarily to capture more permanent or long-term forms of migration whereas a substantial proportion of population movement in India is temporary, short-term, circular or seasonal. As per the last population census count conducted in 2011, there were 45 million people who moved for economic reasons within India (Census of India 2011a).[3] The Periodic Labour Force Survey 2020–21 that collected information on migration estimated that 34 million people moved for employment-related reasons in India (National Statistical Office 2022).[4] According to the Economic Survey 2016–17, India had an estimated 60 million inter-state labour migrants and 80 million inter-district work migrants (Government of India 2017, p. 265). Alternative informal estimates suggest that there are nearly 100 million migrant workers in India (Deshingkar and Akter 2009).

Recent research also shows that growing stress on farming is fundamentally altering the nature of circular mobility. Rural migrants now spend much of the year working in cities, and migration is increasingly taking the form of permanent circularity. It is permanent in the sense that livelihoods are progressively decoupled from agriculture, making rural households' more dependent on non-farm incomes. Yet, it remains circular still because most urban employment is informal and insecure, preventing long-term settlement in cities. This contrasts with earlier pattern of seasonal labour migration that occurred in lean farm seasons for a few months of the year (Choithani *et al.* 2021, p. 5).

Most rural-urban migrants get absorbed in the urban informal sector. The urban workforce is estimated to be little over 150 million, and nearly 80 percent of urban workers (119 million) are engaged in informal employment. A predominant share of urban informal workers are men, though women dominate certain informal occupation such as domestic work (Raveendran and Vanek 2020). Migrant workers constitute an important part of urban informal sector engaging in a wide variety of occupations as *wage workers* and *self-employed workers* in informal enterprises. It is also important to note that informal employment also includes wage work in formal enterprises and households (e.g., cleaners and security guards in large corporate offices) (Chen and Raveendran 2014). The past few years have seen increase in informal employment in formal sector (Kannan 2024).

Figure 7.4 presents the distribution of male workers by broad employment status in rural and urban India. A striking feature of employment in India is a high share of self-employed workers in both rural and urban areas. In rural areas, this can largely be attributed to the dominance of agriculture where self-employment is quite natural. However, in urban India, the high prevalence of self-employment reflects a different reality. This is because urban economies are expected to provide salaried employment options, and thus high urban self-employment suggests economic marginality where workers are left to fend for themselves due to lack of decent salaried jobs. The Economic Survey 2024–25 sees self-employment as a positive development that "reflects growing entrepreneurial activity and a preference for flexible work arrangements" (Government of India 2025a, p. 367). This may be true for skilled workers (e.g., lawyers, chartered accountants) but self-employment among low-skilled informal workers reflects lack of better alternatives.

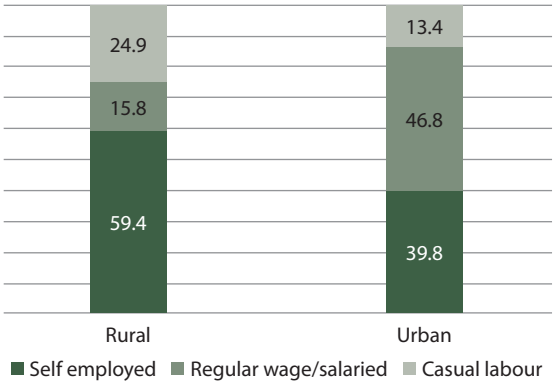

Figure 7.4: Percentage Distribution of Male Workers in Usual Status (ps+ss) by Broad Employment Status and Residence

Source: Periodic labour Force Survey 2023–24 by National Sample Survey Office (2024)

Occupational data highlights this pattern clearly. Informal activities such as home-based work, domestic work, street vending, and waste picking together provide livelihoods to nearly 29 million urban workers, the majority of whom are self-employed. Informal construction and transport are also important sources of work employing an additional 24 million; a lot of these jobs are casual and non-permanent (Table 7.2). India's rising gig economy is another key sector that now provides employment to 7.7 million workers (NITI Aayog 2022), much of which involves low-skilled informal work, such as food and grocery delivery through digital mobile apps as noted in the beginning of this chapter.

It is also important to note that nearly half of the workers in urban India are employed as regular/salaried workers (Figure 7.4). Employment trends over the past few years also indicate that there has been a steady rise in regular employment since 2004–05, particularly for the youth (Mehrotra 2019; Mehrotra *et al.* 2013). This is indeed a positive development.

Table 7.2: Urban Informal Workers in Select Occupations

	Number (in millions)	% of total urban employment
Home based worker	17.0	11.3
Informal construction	14.2	9.4
Informal transport	9.5	6.4
Street vendor/market trader	6.3	4.2
Domestic workers	3.8	2.5
Waste picker	1.5	1.0
Total	52.3	34.8
Total urban employment	150.3	100.0

Source: Raveendran and Vanek (2020, p. 4) based on National Sample Survey 2017–18

However, not all regular salaried jobs are decent jobs with formal employment benefits. In fact, a large share of regular wage/salaried workers in urban India do not have a written job contract, do not receive paid leave and are left out of any social security benefit such as provident fund (Figure 7.5). In effect, what this means is that a lot of regular wage jobs in urban India are also of informal nature as lack of job security and employment benefits constitute important features of informal work.

Informal work in India is also characterised by low wages, long working hours, and the absence of basic employment benefits such as health insurance. Recent data show that 45 percent of all wage workers in urban India, including both regular and causal workers, did not receive the recommended minimum wage in 2020–21 (Kannan 2024). Migrant workers from poorer regions of India are especially vulnerable. They are frequently underpaid, denied agreed compensation, or exposed to exploitative and abusive treatment. As Breman's (1996) seminal research demonstrates, employers often prefer migrant workers because they are perceived as more docile and less likely to resist poor working conditions or low wages. It is important to note that urban informal jobs provide an important alternative to millions of rural workers facing agrarian decline. Remittances sent home by migrant workers play an essential role in financing education, healthcare, and food security for millions of families in the countryside (Choithani 2022).

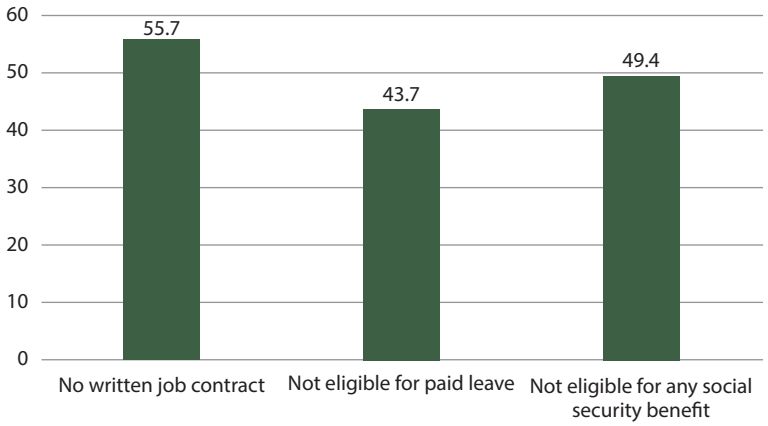

Figure 7.5: Conditions of Employment among Regular/Wage Salaried Workers in Urban India, 2023–24

Source: Periodic labour Force Survey 2023–24 by National Sample Survey Office (2024)

At the same time, informal urban employment is one of the key explanations for circular labour mobility which has dampened urbanisation level in India. Despite rapid economic growth since the early 1990s, which has also been urban-centric as noted earlier, India has not witnessed a commensurate rise in urbanisation which defies the conventional wisdom that "[u]rbanization and growth go together" (Annez and Buckley 2009, p. 1). As per the latest population census conducted in 2011, although India's absolute urban population amounted to nearly 380 million people, it represented only 31 percent of country's population. Crucially, moreover, despite predictions to the contrary, the period coinciding with rapid economic growth has seen

deceleration of urban growth rate.[5] Rural-urban work migration has increased significantly but it is non-permanent and circular as informal jobs prevent rural populations from carving out permanent urban lives. Growing privatisation of land and public amenities in cities have added to exclusionary urbanisation in India (Kundu 2003, 2014). Additionally, India's urban policy vision has long sought to control rural-urban migration of low-skilled workers, an issue to which we now turn.

7.4. Locating Migrants in India's Urban Imagination

India's policymakers increasingly view urbanisation as a positive and transformative force for development. Cities and towns are seen as crucial for sustaining and supercharging the country's economic momentum. The policy push to promote urban growth can be traced to early 2000s, when the 10th Five-Year Plan (2002-07) expressed concern about the slow pace of urban expansion in India and identified urbanisation as an enabler of economic growth. It challenged the "restrictive" approach to urban growth that held sway until then and called for tapping the benefits that urbanisation offers. The plan document noted: "It is necessary to set in motion a virtuous circle of urban growth leading to better resources which are then used for improving infrastructure, which, in turn, will lead to further growth of the cities, resulting in enhanced economic activity and growth" (Planning Commission 2002, pp. 616–17). This was the beginning, in many ways, of a new policy discourse in India that acknowledged the role of cities and towns in fostering social and economic development and need to equip urban centres with adequate public infrastructure to achieve these goals. The 11th Five-Year Plan (2007–12) maintained this policy stance and called for overhauling woefully inadequate urban infrastructure in India (Planning Commission 2008). It was this context that gave birth to the large-scale urban renewal projects such as Jawaharlal Nehru National Urban Renewal Mission (JNNURM) which was launched in 2005 to upgrade urban infrastructure in 63 identified cities (Government of India 2005). Then, in 2008, the government constituted a High-Powered Expert Committee (HPEC) for estimating the investment requirements for urban infrastructure services. The HPEC recommended a wide range of measures to improve urban infrastructure financing, urban planning and governance, and capacity building at all echelons of urban systems and concluded that "India's economic growth momentum cannot be sustained if urbanisation is not actively facilitated" (Ministry of Urban Development 2011, p. XXI). A further boost to urbanisation-centric economic policy was provided by the launch in 2015 of Smart Cities Mission (SCM). The SCM focuses on 100 cities, but the idea is to create replicable models for wider adoption. This mission has the stated objective of improving urban civic infrastructure and quality of life in cities using smart and sustainable solutions but underlying logic is that it will also foster economic growth (Ministry of Housing and Urban Affairs 2025b).[6] This is reflected in a recent policy initiative by NITI Aayog "to develop principles and frameworks for growth enabling urban governance and coordinated spatial and economic planning"(NITI Aayog and Asian Development Bank 2022, p. 3).

Migrant workers form an integral part of India's increasingly urban-centric economy, contributing an estimated 10 percent of the total national GDP (Deshingkar and Akter 2009, p. 40). Yet, despite their economic significance, they remain largely invisible in the country's urban policy imagination. This neglect is rooted in a policy paradigm of rural sedentarism that treats mobility as a disruption to an idealised notion of self-contained village life. It is also reinforced by an inadequate understanding of the crucial role migration plays in sustaining lives and livelihoods (Choithani 2022). Rural outmigration is often viewed by the policymakers as a sign of distress that need to be contained at source lest it spreads to cities. Rural-urban migration is seen as the cause of high unemployment, overcrowding, and strain on civic infrastructure in cities leading to urban decay (Mukherji 2006; Todaro 1969). Not surprisingly, the development

policy in India has sought to control rural-urban migration. Many rural development programmes pertaining to common property resources, watershed management, farm and non-farm livelihoods aim to curb rural migration. For example, one of the key objectives of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is to prevent rural outmigration. The 10th Five-Year Plan which started the more positive discourse on urbanisation, as noted above, also observed the role of rural development programmes in restricting migration to cities, and in effect, even if rather implicitly (and oddly), saw less rural outmigration as desirable. It noted that "perhaps because of the success of rural development programmes along with the limited availability of land for squatting in central urban areas, there seems to be no runaway migration from rural to urban areas" (Planning Commission 2002, p. 613). Similarly, the HPEC constituted in 2008 for estimating the investment requirements for urban infrastructure services, while emphasising on the need to include urban poor and slum dwellers in urban planning and services, did not explicitly deal with migrants (Ministry of Urban Development 2011). Migrant workers also do not find any mention in NITI Aayog and Asian Development Bank's (2022) growth-enhancing urban planning framework. The grand urban initiative of SCM shows similar neglect for migrant workers. For instance, a recent study by Rajput (2024) analyses how domestic migrant informal workers figure in SCM using the case of Pune – one of the 10 most populous cities in India which attracts a large number of migrants. He uses 25 indicators pertaining to internal migration such as recognition of internal migration, vulnerability of employment in urban informal sector, poverty alleviation programme for migrants, need for basic amenities including water, health and sanitation for migrant workers, and so on, and finds that most such measures (20 of 25 indicators) are not mentioned in the SCM documents, and the other five indicators receive passing, inadequate or general reference and are not specific to migrants per se (e.g., access to urban healthcare services).

This thinking also explains the absence of an integrated internal migration policy and institutional framework that can address the precarities and vulnerabilities informal migrant workers routinely face in cities (Rajan 2020; Rajan and Datta 2024; Srivastava 2020). While urbanisation is seen as a positive force, the focus tends to largely be on improving urban infrastructure, and livelihoods needs of migrant workers are inadequately understood and addressed.

7.5. Policies for Migrant Workers: Persistent Exclusions and Recent Initiatives

Most low-skilled migrants are unable to often realise their citizenship rights in cities. They lack adequate housing and other basic amenities. Many live in informal settlements in what (Kundu 2003, p. 3084) calls "degenerated peripheries" of cities where basic infrastructure like water and sanitation are conspicuous by their absence. The urban authorities deem these informal migrant settlements as illegitimate and hence they are excluded from state provisioning of basic service.

The informal status of migrant workers in cities also excludes them from state-run social safety nets. In India, most public welfare schemes for low-income populations, such as subsidised food rations, have traditionally been linked with domicile status and accessing them requires proof of local residence that most circular migrants lack. It is especially challenging for inter-state migrants to access their welfare entitlements outside their state of origin. Additionally, inter-state migrant workers also face social and political hostility. They are frequently portrayed in nativist political rhetoric as outsiders who steal local jobs and undermine native culture. A recent example is Karnataka, where in 2024 the state government proposed legislation reserving 50 percent of management jobs and 75 percent of non-management jobs for locals residents. Although this bill came under severe criticism from private business and industry and was later put on hold, the nativist politics around migration is a live issue not just in Karnataka but in many Indian states. This limited portability of

welfare transfers and local bias in employment are considered to inhibit inter-state mobility in India (Kone *et al.* 2018). In recent years, there have been initiatives to improve migrant workers' access to social welfare provisioning. The sad plight of migrant workers during Covid-19 pandemic, when lockdowns resulted in millions of rural migrant workers being stranded in cities without income, food and shelter, provided an impetus to strengthen policy support for them.

One key initiative is the launch in 2021 of *e-Shram* portal which provides for self-registration of unorganised workers including migrants. The portal aims to create a National Database of Unorganised Workers which is linked with Aadhar. It captures details such as name, address, education, and skills of workers to understand their employability, provide them opportunities for skill upgradation and to extend them social welfare benefits such as old age pension, disability, and death benefits. The workers are provided with an *e-Shram* card which also serves as a form of identity. As of 27 August 2025, 31.07 crores (310.7 million) unorganised workers had registered on this portal which is a welcome development (Ministry of Labour and Employment 2025). However, as Bhide (2024) suggests, many of the benefits are prospective which do not address the current vulnerabilities of unorganised migrant workers.

Another key measure is the Affordable Rental Housing Complexes (ARHC) for urban migrants and urban poor more generally. This scheme too was borne in the context of Covid-19 crisis. This programme uses existing government-funded vacant houses and also provides for the construction and maintenance of new ones to be used as ARHC. This housing includes a combination of single/double bedroom units as well as dormitories available at affordable rates. As per the Indian government data, there are 83,534 houses available for ARHC in 13 states of which 5,648 houses have so far been converted in five states/union territories of Chandigarh (2,195), Gujarat (2,467) Rajasthan (480), Uttarakhand (170), and Jammu and Kashmir (336) (Ministry of Housing and Urban Affairs 2025a). While this represents an important initiative, it caters to the housing needs of a very small fraction of migrant workers. Moreover, independent assessment of the scheme shows many challenges including: (i) poor construction; (ii) high rents (of between Rs. 2,000 and 3,500) which many low-skilled migrants are unable/unwilling to pay; (iii) lack of basic amenities such as improper sewage and waste management; (iv) peripheral locations of ARHCs which increase transport and transactional costs (Bhide 2024; Naik *et al.* 2021).

Yet another important initiative is *One Nation One Ration Card* (ONORC) scheme. ONORC makes food-ration entitlements portable to help the eligible internal migrant workers and their families access subsidised foodgrains under the Public Distribution System (PDS) from any of the nearly five million PDS shops across the country. ONORC leverages biometric-enabled Aadhar infrastructure for migrants to claim their foodgrains entitlements while on the move within and across states (Government of India 2025b). In terms of scheme's effectiveness, the evidence shows that much PDS offtake continues to occur in locations where ration cards are originally issued and that within-state PDS portability is far more effective than inter-state. Tumbe and Jha (2024) analyse ONORC and show that of the 168 million total PDS ration transactions carried out in 30 states and union territories in September 2023 (month they choose to look at detailed off-take figures), 148 million (88 percent) involved no portability, 21 million transactions were within-state and only 0.1 million PDS transactions were inter-state. Their analysis excluded Delhi which topped the chart in terms of interstate PDS portability with 0.3 million transactions in that month but it did not substantially change the picture of low overall effectiveness of interstate PDS portability. Another study that looked at food security among 589 migrant workers living in informal settlements in Bengaluru with the study sample divided roughly equally between within and outside Karnataka migrants showed nearly 90 percent of both intra-state and inter-state migrants used PDS all 12 months in the past year. In terms of using PDS portability, one-third of within-Karnataka (80) migrants – most of whom came from poor districts in northern Karnataka – availed food rations in Bengaluru all 12 months in the past year, compared to just 5 outside Karnataka migrants (see Choithani 2025).

Governance challenges associated with portability hinder ONORC's effective implementation. For instance, ration card is issued for the household as a whole which poses challenges for households where migration involves single men moving to cities while the rest of the family stay put in the village. While ONORC allows for splitting of food entitlements across different locations by different members, this does not always work out in reality. There is also lack of coordination between states which limits the scheme's effective implementation. This is not an argument against the scheme. ONORC represents an important initiative that can reduce migrant workers' vulnerability in destinations. But this needs to be implemented more effectively for migrant workers by improving PDS governance, better coordination between implementing bodies within and between states and raising awareness among migrant beneficiaries.

7.6. Conclusion

This chapter examines the dynamics of rural-urban migration and urban livelihoods in India, focusing on the low-skilled migrant workers in the informal sector. It situates these issues in the wider context of economic and livelihood change in India. Since the economic reforms of early 1990s, India has achieved rapid economic growth. This high growth has also accelerated structural transformation of Indian economy: agriculture now contributes a small proportion of the national income, while non-farm activities in cities and towns generate a large share of India's economic output. This structural economic shift has occurred in a context where most of the country's population still officially lives in rural areas. This has prompted millions of former farm workers to move to cities for alternative livelihoods. Most rural-urban migrants work in the precarious urban informal sector without livelihood security and social protection. The informal employment prevents low-skilled migrants from carving permanent urban futures and explains why a bulk of labour mobility in India is circular with migrants earning in cities but remaining connected with natal villages to which they eventually return. This exclusionary urbanisation is also reflected in headline national statistics that show low overall urbanisation despite rapid economic growth, leading the World Bank (2013, p. 23) to characterise this growth-urbanisation disconnect as "a major puzzle". It is important to note that informal urban jobs provide important alternatives to make up for the agrarian decline. Remittances that circular migrants send to their villages provide crucial resources for their rural families to meet food, health, education needs and maintain land and agriculture (Choithani 2022). Yet, policy significance of migration is not adequately acknowledged and policies that support decent and dignified livelihoods for migrant workers in urban areas are sorely lacking.

Development discourse and planning have traditionally viewed rural-urban migration as undesirable. Rural outmigration is often seen as sign of distress that ought to be contained. Consequently, many rural development programmes are designed to retain populations in the countryside rather than facilitating migration. This thinking ignores the fact that migration has traditionally formed a key component of household livelihoods. Dominant policy discourse on urbanisation shows similar disregard. India's urban policy imagination appears to be shaped by a narrow vision of urbanisation that prioritises infrastructure development and economic growth through agglomeration economies, but without due regard to the needs of low-skilled migrant workers who contribute significantly to India's urban economy. Rural-urban migrants are often viewed as illegitimate urban citizens who strain infrastructure in cities. This dual exclusion at rural and urban ends explains the absence of a comprehensive and rights-based policy framework for internal migrants in India (Rajan and Datta 2024; Srivastava 2020).

Covid-19 pandemic threw this exclusion of low-skilled migrant workers into sharp relief. Lockdowns to curb Coronavirus spread left millions of informal migrant workers stranded without jobs, incomes, and access to basic health and social protection services, leading to a migrant workers crisis of an unprecedented scale. But Coronavirus pandemic was not a one-off event. Covid-19 essentially laid bare the systemic exclusion and neglect migrant workers routinely face in policy and planning. This crisis also

provided a catalyst to put in place policy measures to support migrant workers. The initiatives to register migrant workers for future employment benefits, food ration portability to enable them to access subsidised foodgrains outside their home states, and affordable housing in cities are all important programmes. However, they do not sufficiently consider the complex realities of circular rural-urban labour movement, and their current implementation leaves much to be desired. There is a pressing need for what Bhide (2023, 75) calls "migrant-aware policies" that not just improve migrant workers' access to social protection for them to navigate uncertain urban environments but also help them gain decent and dignified livelihoods in cities to improve their lot in the long run. The policy preoccupation to control rural-urban migration is counterproductive. Integrating migrant workers in the urban policy framework can not only help achieve the objective of faster economic growth but will also promote just and inclusive urbanisation.

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Endnotes

1 Piyush Goyal's speech at *Startup Mahakumb's Second Edition* available at *https://www.youtube.com/watch?v=ghJJzqiXrZs&ab_channel=BusinessToday*

2 See Mehrotra (2019) for a useful discussion on policy roots of informality in the post-independence period

3 This includes those who cited 'business' as the reason for migration.

4 Note that Periodic Labour Force Survey 2020–21 was conducted during Covid-19 which drastically reduced mobility and thus some of the underestimation of work mobility is likely the pandemic effect.

5 The annual urban growth rate declined from 3.79 percent during 1971–81 to 3.09% in 1981–91 and further to 2.75% during 1991–2001, though this declining trend halted in the subsequent decade with annual urban growth rising marginally to 2.76% during 2001–11. This turnaround in India's urban growth is largely because of urbanisation of erstwhile rural regions which is also attributed to the increasingly exclusionary nature of India's large cities (see Bhagat 2012, van Duijne *et al.* 2023).

6 SCM originated from the promise Bhartiya Janata Party made in 2014 election campaign to create 100 new cities in India which will be equipped with latest technology and infrastructure. But this later changed to upgrading amenities and infrastructure in existing cities rather than creating new ones. Some analysts have argued that SCM is JNNURM in a new avatar (Anand *et al.* 2018).

Beyond the Fields: Assessing Opportunities for Women's Participation in India's High-Growth Sectors

8

Kajol Tanaya Behera, Suki Iyer, Smita Premchander, Taposi Roy

8.1. Introduction

India's growth over the next decade is expected to be driven by high-potential non-farm sectors that can generate 7.85 million jobs annually until 2030 (Economic Survey 2024–25). The central question is whether this expansion can genuinely include women, whose labour-force participation (LFP) remains among the lowest in the G20, standing at 25.6 percent compared with a global average of 47 percent (Periodic Labour Force Survey (PLFS) 2025; International Labour Organization (ILO) 2024).

This chapter applies United Nations Women's seven drivers of Women's Economic Empowerment (WEE) to assess how India's high-growth non-farm sectors create or constrain women's participation. Drawing on evidence from the Economic Survey 2024–25, PLFS, and industry reports, it identifies where inclusion is feasible and where barriers persist. The analysis suggests strong potential for women's participation in fintech, electronics and semiconductors, e-commerce, healthcare, electric vehicles (EV), renewable energy, agro-processing, EdTech, artificial intelligence (AI), insurance, and cybersecurity. Yet, high-growth sectors continue to reproduce structural constraints from time poverty, low wages, to unequal STEM (science, technology, engineering, and mathematics) access that limits women's advancement. The chapter concludes with key recommendations to embed gender targets within industrial and skilling policies, adopt gender-responsive procurement under the Production Linked Incentive (PLI) and green-growth missions, and track inclusion outcomes through a dedicated national WEE dashboard.

8.2. Context and Rationale

Identifying "optimum opportunities" therefore means evaluating not only growth potential but also women's entry, retention, and progression within these industries. Mapping India's high-growth sectors against the seven WEE drivers – (1) norms, (2) legal protection, (3) care investment, (4) asset-building, (5) business culture, (6) access to skills and decent work, and (7) collective action – identifies where interventions can yield the highest empowerment returns (Figure 8.1).

Figure 8.1: The Seven Drivers of Women's Economic Empowerment

Source: UN Secretary General's High Level Panel on Women's Economic Empowerment (2016), 'Leave No One Behind'

8.3. The Status of Women's Participation in the Indian Economy

Women's participation in India's labour force remains low and uneven across sectors. Low LFP, wage gaps, limited social protection, and high NEET (Not in Education, Employment and Training) rates continue to constrain women's economic inclusion.

According to the PLFS, India's female labour force participation (FLFP) averaged 41.7 percent in 2024 (male: 78.8 percent) but declined sharply to 25.6 percent in the second quarter of (Q2) 2025 (male: 77.1 percent) (See Figure 8.2).

Wage disparities remain stark. In 2023–24, female salaried workers earned an average of ₹8,855 per month (real terms) and self-employed women earned ₹2,950, compared with ₹11,858 for male salaried workers and ₹8,591 for self-employed men (Economic Survey 2024–25; PLFS 2023–24; Ministry of Statistics and Programme Implementation (MoSPI); Data for India 2025). Only one-fifth of all workers – and an even smaller share of women – earned more than ₹15,000 per month, with a median income near ₹9,000.

Women's NEET rate in 2023–24 stood at 33.9 percent, almost four times that of men (8.2 percent) (V. V. Giri National Labour Institute 2024). This underscores how a large proportion of women are neither employed nor gaining marketable skills (See Figure 8.3).

Women's participation is also marked by sectoral and spatial patterns of exclusion. In rural

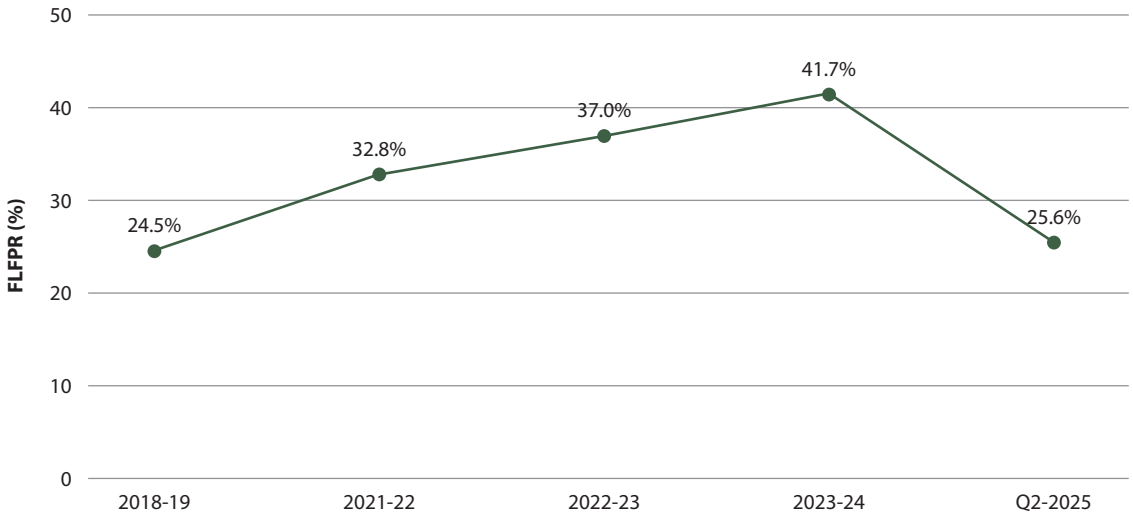
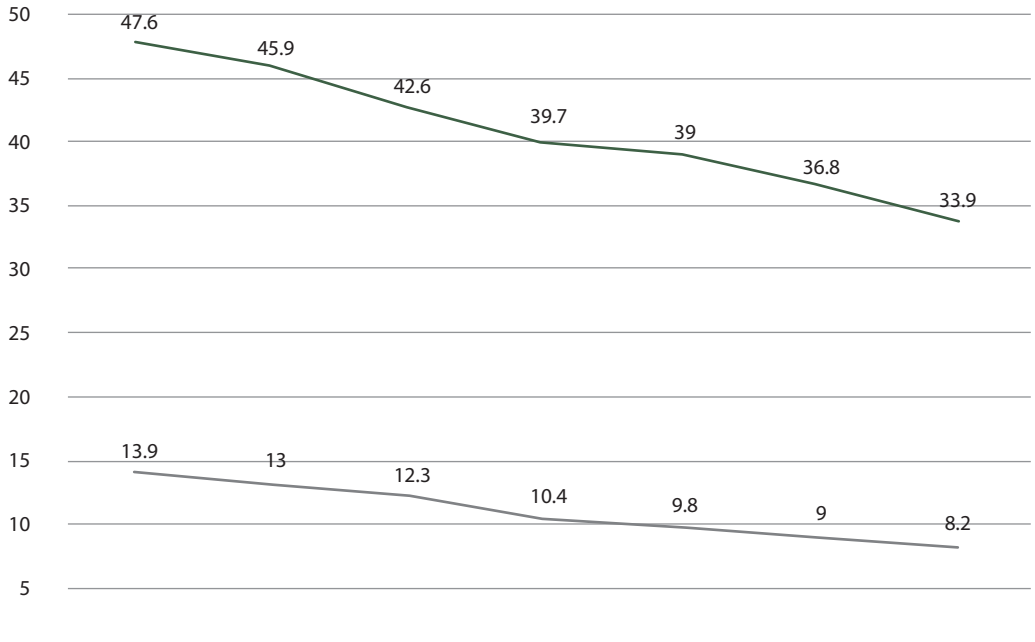


Figure 8.2: FLFR India

Note: The methodology of the PLFS survey has changed (coverage, sampling, definitions), which means direct year-on-year comparisons may require caution.
Source: PLFS Annual Reports



	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Female	47.6	45.9	42.6	39.7	39	36.8	33.9
Male	13.9	13	12.3	10.4	9.8	9	8.2

Figure 8.3: NEET Rate Female Vs Male in India

Source: PLFS Annual Reports

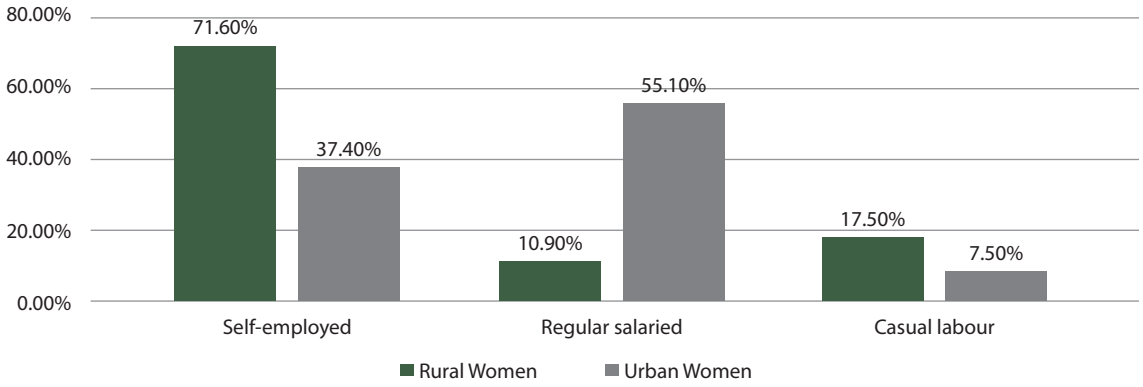


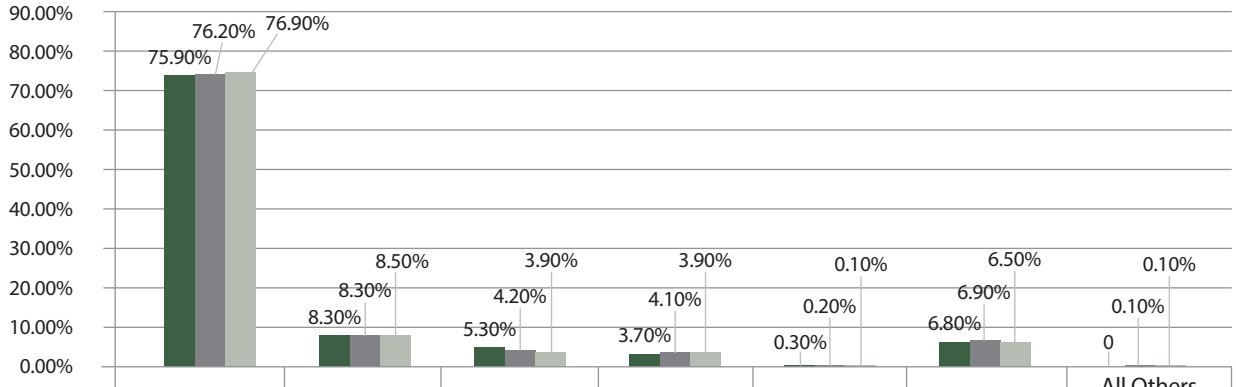
Figure 8.4: Rural Women's Sectoral Participation: The Nature of Rural and Urban Women Workforce

Source: V.V. Giri National Labour Institute, 2024

India, most women remain primarily engaged in self-employed within agriculture, while in urban regions they are concentrated in regular salaried jobs (See Figure 8.4). Yet, 61 percent of all female workers remain in the informal economy, without job stability or protection. Even among those in non-agricultural regular jobs, 57 percent lack written contracts and 58 percent have no social security benefits (PLFS 2024).

Rural women's employment remains heavily concentrated in agriculture as 71 percent of them are engaged in primary sector activities (PLFS Apr–Jun 2025). The Economic Survey 2024–25 notes that female employment in agriculture has increased even as men's participation fell (from 55.0 percent to 49.4 percent). Women's participation in secondary sectors such as manufacturing and construction has stagnated between 12–14 percent, indicating limited diversification of their economic roles (See Figure 8.5).

By contrast, urban women are concentrated in the services sector (65 percent), particularly



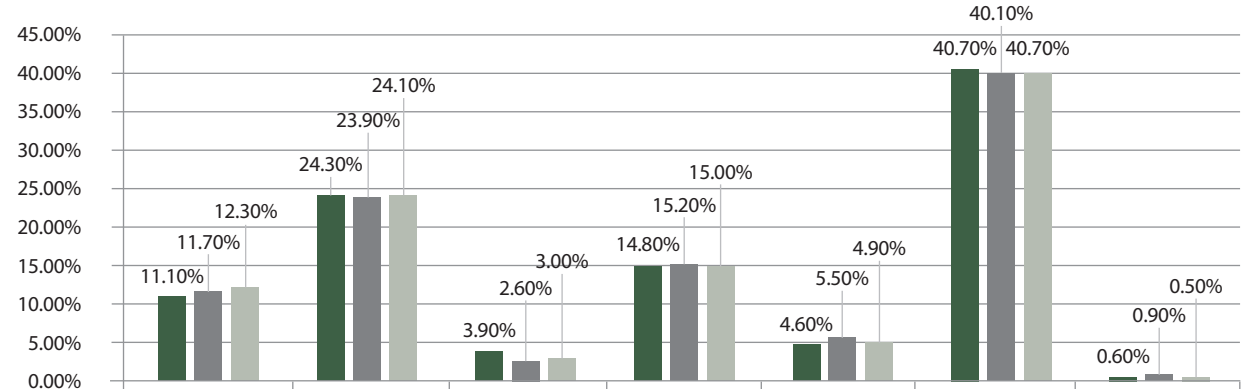
	Agriculture & allied	Manufacturing	Construction	Trade/Hotels	Transport/Comm.	Other Services	All Others (incl. Mining, Utilities)
2021-22	75.90%	8.30%	5.30%	3.70%	0.30%	6.80%	0
2022-23	76.20%	8.30%	4.20%	4.10%	0.20%	6.90%	0.10%
2023-24	76.90%	8.50%	3.90%	3.90%	0.10%	6.50%	0.10%

Figure 8.5: Rural Women's Sectoral Participation

Source: Economic Survey, 2024-25

in education and health, though these roles are often informal, contract-based, or part of the gig economy, offering little job security (Economic Survey 2025) (See Figure 8.6).

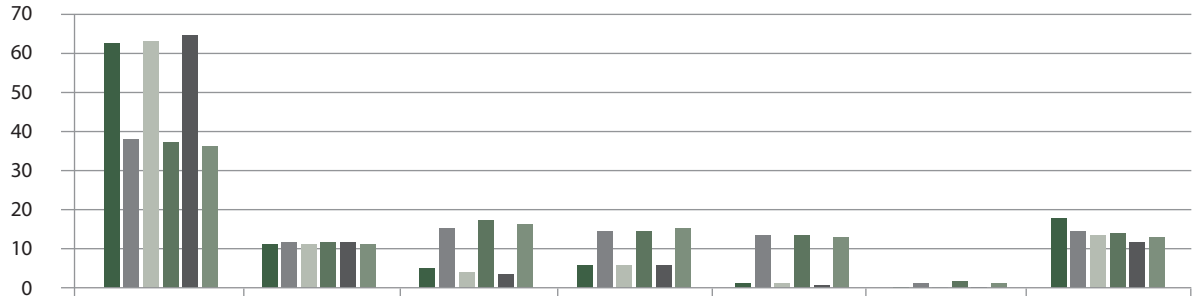
In 2023–24, 64.4 percent of women workers were employed in agriculture, compared with 36.3 percent of men. Men were more visible in construction (16.4 percent), transport and communications (13.1 percent), and trade, hotels, and restaurants (15.5 percent), where female participation remains below 7 percent (See Figure 8.7).



	Agriculture & allied	Manufacturing	Construction	Trade/Hotels	Transport Comm.	Other Services	All Others (incl. Mining, Utilities)
2021-22	11.10%	24.30%	3.90%	14.80%	4.60%	40.70%	0.60%
2022-23	11.70%	23.90%	2.60%	15.20%	5.50%	40.10%	0.90%
2023-24	12.30%	24.10%	3.00%	15.00%	4.90%	40.10%	0.50%

Figure 8.6: Urban Women's Sectoral Participation

Source: Economic Survey, 2025



	Agriculture & allied	Manufacturing	Construction	Trade/Hotels	Transport Comm.	Other Services	All Others (incl. Mining, Utilities)
2021-22 women	62.9	11.2	5	5.9	1.2	0.3	18
2021-23 men	38.1	11.8	15.6	14.7	13.7	1.5	14.5
2022-23 women	63.3	11.1	4	6.2	1.2	0.3	13.8
2022-23 men	37.1	11.6	17.3	14.8	13.7	1.6	13.9
2023-24 women	64.4	11.6	3.7	6.1	1	0.3	11.9
2023-24 men	36.3	11.4	16.4	15.5	13.1	1.3	13

Figure 8.7: Women and Men LFPR across Farm and Non-farm Sectors

Source: Economic Survey, 2025

These patterns reveal a persistent structural divide: men benefit from greater mobility and access to urban, skill-based, and growth-oriented sectors, while women remain concentrated in subsistence agriculture and informal, low-wage services. Their systemic exclusion from high-growth non-farm sectors underscores the need to identify where and how women can participate meaningfully in India's next phase of economic expansion.

The following section examines opportunities for women's employment and enterprise in high-growth non-farm sectors.

8.4. Opportunities in High-Growth Non-farm Sectors

India's non-farm sector is expanding rapidly, driven by sectors that combine innovation, investment and employment potential. The Economic Survey 2024–25 and Invest India (2025) together identify several high-growth sectors poised to generate large-scale employment over the next decade. Invest India (2025) highlights seven core sectors already demonstrating strong expansion – fintech, electronics and semiconductors, e-commerce, healthcare and pharmaceuticals, electric vehicles, renewable energy, and agro–food processing. These form the backbone of India's non-farm transformation and are central to understanding women's current and potential workforce participation.

In parallel, the Economic Survey (2024–25) identifies four emerging sub-sectors – education, AI and EdTech, insurance, cybersecurity, and textiles, as critical areas for future employment generation. While these are at varying stages of maturity, they represent strategic skills-led and policy-enabled opportunities where women can be integrated into the evolving green and digital economy.

The following analysis examines both groups through a gender lens – first assessing the core high-growth non-farm sectors for which gender-disaggregated employment data are already available, and then reviewing emerging high-potential sectors that could shape the next phase of women's economic inclusion.

8.4.1. Fintech and Digital Financial Services

India leads the world in fintech adoption (87 percent) with Unified Payments Interface (UPI) processing approximately 19 billion monthly transactions worth ₹200–250 trillion (National Payments Corporations of India (NPCI) 2025). The sector is valued at ₹9.2 trillion in 2024 and projected to reach ₹35 trillion by 2029 (EY 2024). Fintech added 300,000 jobs in 2024 (Invest India 2025), mainly in digital payments, analytics, and compliance.

Women's representation in fintech remains uneven at different hierarchies. While 42 percent of fintech start-ups registered with the Department for Promotion of Industry and Internal Trade (DPIIT) have at least one woman founder or director (Economic Times Banking, Financial Services and Insurance or ETBFSI 2024), only 5 percent of senior leadership roles are held by women (National Association of Software and Service Companies or NASSCOM 2023). About 19 percent women are projected to reach leadership or board levels by 2030. A detailed view of women's representation in tech by 2030 projections is as depicted in Figure 8.8.

Entry and junior-level women can be supported through initiatives like the Reserve Bank Innovation Hub (RBIH)'s Swanari TechSprint, which promotes women-focused solutions in credit, safety, and data use at the national level. Skilling initiatives such as Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) platform offers flexible and self-paced online training programs with certification in areas like product design, user experience (UX), risk analytics, data science, compliance, and cybersecurity. This flexibility is crucial for women participants, though gender-disaggregated data is not available. According to the All-India Survey on Higher Education (AISHE) 2021–22 report by the Ministry of Education, a total of 9.49 million learners had registered on SWAYAM, of whom 46.6 percent were women. Although women's registration on the portal is only marginally less, the course-wise gender data are unavailable, and there is no information on women's course-completion rates.

Gender pay gaps persist despite the sector's digital inclusivity. The average annual fintech salary is ₹2.29 million, with women earning ₹2.2 million compared to men's ₹2.8 million. Entry-level roles average ₹0.45 million, mid-career positions ₹0.9–1.6 million, and senior roles exceed ₹2 million. Projections indicate that 60 percent of women in fintech will remain concentrated at entry and junior levels, while only 18 percent may rise to mid-senior positions. These trends reveal a gendered pyramid i.e., women form a visible base of the fintech workforce but remain underrepresented in decision-making, design, and capital-allocation roles.

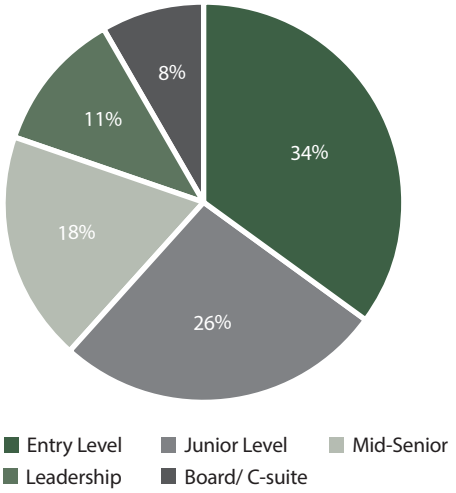


Figure 8.8: Representation of Women in Tech (Projected)

Source: Collated by Author from Various Sources

8.4.2. Electronics and Semiconductors

The electronics and semiconductors sub-sector grew at 17.5 percent compound annual growth rate (CAGR 2014–24) and employs ~1 million people (India Brand Equity Foundation or IBEF 2024). Production linked incentive (PLI) schemes and new labs [examples: Research and Development (R&D) units of Tata Electronics in Assam, and Next EXperience (NXP) in Noida] are creating 25,000–30,000 jobs annually.

Women currently form 25 percent of the current 220,000-member semiconductor workforce, which is projected to rise to 35 percent by 2030 (NLB Services, 2025). Figure 8.9 illustrates the projected gender composition along the value chain. Women hold 28 percent of supervisory roles, 32 percent of individual contributor roles, and 5–7 percent of leadership positions. Representation peaks in fabrication and design but drops sharply in leadership, reflecting a persistent glass ceiling.

To build technical talent, the Ministry of Electronics and Information Technology (MeitY) plans to train 85,000 engineers (2023–27) in very large-scale integration (VLSI) and embedded systems through advanced electronic design automation tools across 120 institutions. The programme supports system-on-chip

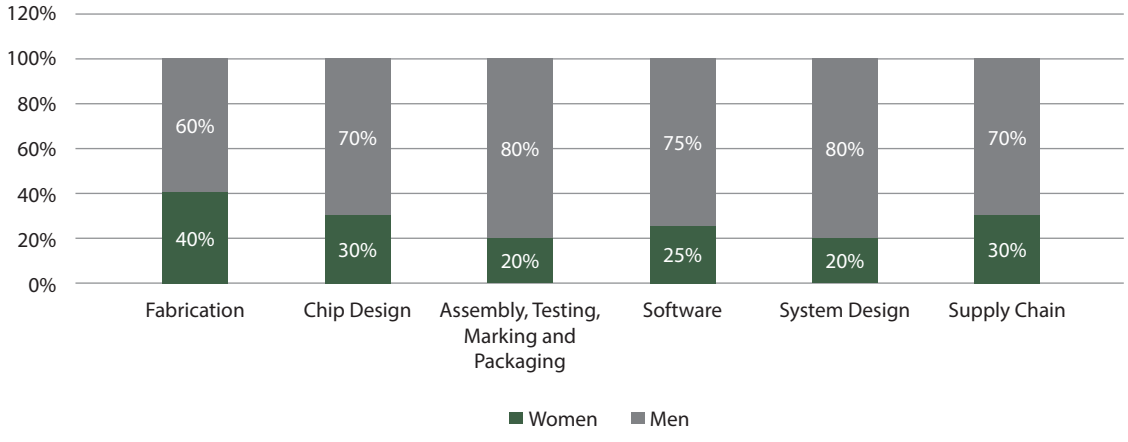


Figure 8.9: Projected Representation of Women in the Electronics/Semiconductors Sector

Source: Created by Author using Data from NLB Services (2025); Indian Startup News (2025); Ministry of Information and Technology (MEITY); BiasWatchIndia (2024)

prototyping, IP repositories, and Micro, Small, and Medium Enterprises (MSME) participation. Corporate initiatives such as faculty development programmes, internships, and bootcamps further strengthen the talent pipeline, though gender-disaggregated data are not available. These measures present a unique opportunity to advance women's participation in high-value manufacturing, provided gender-responsive skilling and leadership pathways are built into the semiconductor ecosystem.

8.4.3. E-commerce and Consumer Goods

The e-commerce sector was valued at ₹5.8 trillion in 2024 and is projected to reach ₹27 trillion by 2030 at an 11 percent CAGR (Economic Survey 2025). Policy measures such as Make in India, Aatmanirbhar Bharat, and the Foreign Trade Policy (2023) support MSMEs through export credit, Goods and Services Tax (GST) refunds and mentoring schemes such as Niryat Bandhu. Digital platforms – the Open Network for Digital Commerce (ONDC), Government e-Marketplace (GeM), E-commerce export hubs and the forthcoming Bharat Mart in Dubai etc. are connecting Small and Medium Enterprises (SMEs) and artisans from smaller cities directly to international buyers.

E-commerce employs about 15.8 million people, including around 3.5 million women (Pahle India Foundation 2024). Typical entry roles include warehousing, logistics, digital marketing, and seller support. Around 20 percent of Indian enterprises (13.5–15.7 million businesses) are women-run (NITI Aayog; World Bank). In leading direct-to-consumer (D2C) segments such as personal and home care, food and beverages, and fashion, approximately 52 percent of startups are women-led, totalling roughly 3,644 firms (Startup India 2023). Evidence indicates women in warehousing often show equal or higher productivity and lower attrition than men, though safety and mobility remain concerns (Mehrotra and Sinha 2019).

E-commerce and information technology (IT) are mutually reinforcing; digital infrastructure enables seller platforms, logistics coordination, and marketing services that expand market access for women. Self-help groups (SHGs) and farmer producer organisations (FPOs) are using ONDC to reach buyers, while language support through Bhashini and cooperative aggregation improves accessibility for rural women. Globally, demand for e-commerce skills is rising – managers and digital marketers in Southeast Asia, product managers in Europe, and customer success specialists in Middle East and North Africa (MENA) (Confederation of Indian Industry or CII et al. 2024).

Overall, e-commerce presents an immediate, scalable pathway for women's inclusion in the non-farm economy if interventions address skilling, safety, and digital market linkages.

8.4.4. Pharmaceutical and Healthcare

India is often described as the "pharmacy of the world," producing 60 percent of global vaccines. The sector's turnover stood at ₹4.17 trillion in the financial year (FY) 2024, growing at around 10 percent annually (Ministry of Finance 2025). The private sector accounts for nearly 85 percent of total healthcare employment (Dasra 2023). The medical devices segment is expanding at 15 percent CAGR, accounting for 1.5 percent of the global market. Recent policy reforms have accelerated access to high-value therapies by waiving local trials for drugs already approved in the United States, United Kingdom, Japan, Canada, Australia, and the European Union (EU).

India's healthcare and pharmaceutical industries together employ about 9.3 million people, with women representing 29 percent of doctors, over 88 percent of nurses and midwives, and nearly all community health workers, including accredited social health activist (ASHAs). In pharmaceuticals, women constitute between 22–25 percent of the workforce, primarily in sales, quality control, and R&D (PLFS 2023; IBEF 2023). Women also make up 30 percent of the biotech workforce, 40 percent of biotech faculty, and 24 percent of life sciences board seats – higher than the Bombay Stock Exchange (BSE) 200 average of 18 percent.

According to United Nations (UN) Women (2021) and the ILO (2024), greater investment in healthcare and the broader care economy could

generate up to 69 million jobs in India by 2030, including around 8 million new positions in private healthcare and an estimated 40,000 leadership roles. Demand is also rising for digital health skills such as telemedicine, digital diagnostics, and health insurance technology. Beyond laboratories, the pharmaceutical sector offers growing opportunities in sales, marketing, clinical research, regulatory affairs, and supply chain management (McKinsey Global Institute 2025).

The Department of Biotechnology promotes women's participation through initiatives such as BioCARe, the Janaki Ammal Awards, the National Biopharma Mission, and the Biotechnology Park for Women Society. While the sector offers substantial employment potential for women, significant gaps remain in job quality, security, and access to leadership. Achieving decent work standards and ensuring gender parity in R&D, management, and policy roles are critical to making this expansion genuinely inclusive.

8.4.5. Electric Automobile and Auto Components

India's EV sales surged by 20 percent in 2024, surpassing one million units and outpacing the overall auto market. Growth is driven by strong policy support, including the ₹440.38 billion PLI scheme for autos and batteries and consumer subsidies under Faster Adoption and Manufacturing of Electric Vehicles (FAME)-II. Together, these efforts target a projected US$100 billion market opportunity by 2030, aligned with India's Net Zero 2070 Goal (India Energy Storage Alliance 2023).

Women currently comprise between 11 and 15 percent of the EV workforce, primarily in roles related to design, business modelling, and e-mobility, and they account for about 30 percent of new hires in design and development. The World Bank (2021) estimates that the e-mobility transition could generate 10 million direct jobs in India by 2030, with women's participation potentially rising to 50 percent over the next decade. Companies such as Tata Motors and MG Motor have introduced gender-diverse assembly lines, with MG targeting a 50 percent female workforce (up from the current percent).

Bihar provides a notable example through its "Bihar Hai Taiyar" programme, which established women-only EV repair training centres to equip rural women with technical skills in maintenance and customer service. Although data on trainee outcomes are limited, the initiative represents an innovative inclusion model.

Recruitment agencies report that six of every ten new EV hires are women, particularly in business modelling, design redevelopment, and renewable energy management. The sector also offers women around 35 percent higher wages than other manufacturing industries, reflecting demand for design and safety expertise. Nationally, the Skill Council for Green Jobs, Mudra Yojana, and Stand-Up India are expanding opportunities for women's skilling and entrepreneurship in the EV ecosystem, though better data is needed to assess their scale and impact.

8.4.6. Renewable Energy

India's renewable energy capacity surged to 209.44 Giga Watts (GW) by December 2024, with solar power leading this 15.84 percent annual growth. The sector's expansion, especially solar photovoltaic cell manufacturing, is significantly boosted by the PLI scheme. This initiative is projected to create nearly one million jobs, underscoring its role in powering both the economy and the clean energy transition.

The Natural Resources Defense Council–Council on Energy, Environment and Water (NRDC–CEEW) "Clean Jobs" study in 2022 surveyed 165 companies to find that women represent under 15 percent of India's clean energy workforce, mostly in non-technical roles like human resource (HR) and finance. The study revealed that women currently represent just 11 percent of the solar energy value chain workforce, 3 percent in construction roles, and just 1 percent in operations and maintenance, which are far below the global average of 32 percent. Official support is provided through schemes like PM Surya Ghar, where women manage solar installations, and the Women's Empowerment Scheme, which aim to enable women to become active producers and managers of clean energy.

A 2019 Council on Energy, Environment and Water (CEEW) study found that women make up over 52 percent of the informal

solar workforce. In mid-level roles, such as administrative, HR, and certain project coordination functions, representation is less than 50 percent. At senior levels, it drops to mere 5-8 percent. Programs like the 'Women in Renewable Energy (WiRE)' initiative by Shakti Sustainable Energy Foundation and the 'Women in Wind' global leadership program are working to build networks and mentorship.

Even with all these initiatives, women in India's renewable energy sector are significantly underrepresented, particularly in high-skill, technical, and leadership roles, largely due to a combination of social norms, safety concerns, and a skills gap. Capital intensity and mobility issues limit women's participation in utility-scale projects.

8.4.7. Agro and Food Processing

India's food processing industry is a major economic driver, contributing roughly ₹1.92 trillion in gross value added (GVA) and representing about 8.8 percent of manufacturing GVA, 8.4 percent of agricultural GVA, 13 percent of exports, and 6 percent of industrial investment. Projections suggest that by 2030, the sector could swell to ₹60.22 trillion, scaling to ₹185 trillion by 2047 (IBEF 2022).

The agro and food processing sector employs around 1.93 million people in the registered factory segment and 5.1 million in the unorganised sector, totalling over 7 million jobs. Studies reveal that women constitute around 36 percent of the workforce in dried snack units, leveraging traditional skills, with lower participation (11 percent) in edible oil manufacturing, which requires more technical expertise.

The Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) provides subsidies and loans to microenterprises in this sub-sector, from which women also benefit, but gender disaggregated data is not available. Under another government scheme, the Pradhan Mantri Kisan Sampada Yojana (PMKSY), 1,601 projects have generated over 433,000 jobs. An additional 1,646 projects have been sanctioned with the potential to generate 13.42 lakh jobs in the coming years. Two training institutes in Haryana and Tamil Nadu have been granted the status of national institutions and have been tasked with training the future workforce in food technology and entrepreneurship, with a third institute planned in Bihar. These developments are expected to enhance women's access to technical education in the food processing sector.

Together, these seven core sectors form the backbone of India's expanding non-farm economy, generating employment across technology, manufacturing, and green industries. Women's participation within them, while growing, remains concentrated in low-skill or informal roles. Beyond the core high-growth non-farm sectors, several other industries are expanding rapidly and are expected to contribute significantly to employment generation in the coming decade. The Economic Survey (2024–25) highlights four such sub-sectors: Textiles, Insurance, AI and EdTech, and Cybersecurity, as high-potential growth domains. These sectors vary widely in maturity, structure, and gender representation, but together they capture the breadth of India's non-farm transformation from labour-intensive production to high-skill digital services. They are presented here in the order of women's employment opportunity size, combining current workforce scale, policy momentum, and projected growth.

8.4.8. Additional Sectors with High-Growth Potential in India

8.4.8.1. Textiles

The textiles sector contributes nearly 2.3 percent to India's GDP and remains one of the country's largest sources of employment after agriculture, providing an estimated 45 million direct jobs. India is also a major exporter, and policy is strongly pushing a pivot toward Man-made Fibres (MMF) and technical textiles through initiatives such as the Production Linked Incentive (PLI), PM-MITRA parks, and the National Technical Textiles Mission (NTTM). Under the NTTM, 168 research projects worth around ₹5.09 billion have already been approved. Women already dominate many garmenting operations. As MMF and technical textiles expand, new higher-

skill opportunities are expected to emerge in areas like quality assurance, compliance, product development, and environmental, social, and governance (ESG)/sustainability management.

8.4.8.2. Insurance

India's insurance market is projected to expand at 11.1 percent CAGR in 2024–28, the fastest in the G20, aided by a rising middle class and tech-enabled distribution (Swiss Re 2023). Opportunities for women are widening across the agency, Point of Sales Persons (PoSP) channels, claims, underwriting support, analytics, and customer experience. Insurance Regulatory and Development Authority of India's (IRDAI's) "Bima Trinity" explicitly embeds a women-centric last-mile sales force named Bima Vahak to deepen rural reach, creating large volumes of local, flexible jobs suited to women in supervisory and managerial tracks. These provide evidence that opportunities for women are likely to widen across the agency, PoSP channels, claims, underwriting support, analytics, and customer experience.

8.4.8.3. Education, AI and EdTech

The Economic Survey 2024–25 highlights the launch of AI Centres of Excellence (CoEs) at top institutes and a ₹1 trillion financing fund to boost private R&D in sunrise sectors. The focus is on education–industry partnerships to turn technology into jobs. Women are a strong talent base: they make up about 49 percent of higher education enrolment and 43 percent of STEM graduates. National skilling programmes like Pradhan Mantri Kaushal Vikas Yojana (PMKVY) have also trained a high share of women (40 percent of beneficiaries). This creates growing opportunities for women in EdTech, such as content creation, learning design, platform operations, analytics, and student-success roles. The survey positions AI as a tool to improve productivity, not reduce jobs, if skilling keeps up. This is supported by AI CoEs and the Cabinet-approved India AI Mission (₹103.71 billion), which is tasked with building compute infrastructure, datasets, and skilling pipelines. Large industry initiatives like Microsoft's AI skilling programs are already training Indian women at scale (aiming at 100,000 women in Tier 2 and Tier 3 cities) and opening jobs in data annotation, model testing, AI governance, and domain-specific AI uses (healthcare, finance).

8.4.8.4. Cybersecurity

India handled approximately 1.16 million (2020), 1.40 million (2021), and 1.39 million (2022) incidents via the Indian Computer Emergency Response Team (CERT-In). India now holds a Tier-1 standing in the International Telecommunication Union (ITU) Global Cybersecurity Index (score 98.49/100). For women, this translates into fast-growing roles in security operations centre, governance, risk, and compliance (GRC), secure development, cloud security, and incident response. Women-focused pipelines such as CyberShikshaa have already trained 1,100+ women and are scaling statewide. The sector offers future potential for training and employment of women.

Together, these sub-sectors generate an estimated ₹16.5 trillion in economic output and employ over 52 million workers. Textile and apparel continue to anchor women's employment, with women forming nearly half the workforce, while the expanding digital ecosystem – comprising AI, Edtech, insurance, and cybersecurity – offers new, higher-value opportunities. Over the next decade, this momentum is expected to continue, with projected annual growth rates of 8.5 percent in textiles, 12 percent in EdTech, 11 percent in insurance, 14 percent in cybersecurity, and nearly 20 percent in AI (Economic Survey 2024–25; NASSCOM–DSCI 2024; EY–FICCI 2024; Swiss Re Institute 2024). India therefore has significant growth potential for women's employment and enterprise, enhanced significantly by the potential in the growth sectors outlined above. Realising this potential will require concerted efforts. At the same time, several sector-specific and structural constraints persist, which are discussed in the following section.

8.5. The Challenges to Women's Economic Participation

Women's participation in India's high-growth non-farm sectors is shaped by a dual set of constraints: sectoral barriers embedded within specific industries, and structural barriers that cut across the labour market.

Sectoral barriers arise from the structure, skill requirements, and organisation of work within industries. In manufacturing-led sectors such as electronics, EVs, and agro-processing, women remain concentrated in low-skill or assembly-line roles with limited scope for advancement, reflecting persistent gendered divisions in technical training and task allocation (ILO 2021; MoSPI 2025). Service-led sectors such as fintech, e-commerce, and healthcare record higher entry of women but continue to reproduce segmentation through support-oriented and precarious positions, with few progressing to managerial or leadership levels (NASSCOM 2023; McKinsey & Company 2025). Even in green and technology-intensive areas such as renewable energy, the circular economy, and AI, women's presence is peripheral, often limited to outreach, maintenance, or data-labelling functions with little access to innovation or ownership roles (International Renewable Energy Agency or IRENA 2021; UN Women, 2025). Growth alone, therefore, does not dismantle gender hierarchies; it often reproduces them in new forms (Mehrotra and Sinha 2019).

Structural barriers compound these inequalities by constraining women's participation across their working life cycle. Although 48 percent of university students are women, only about one-third enter the workforce at the entry level, and just 24 percent are able to rise to managerial positions (McKinsey & Company 2025; MoSPI 2025). Recruitment remains weak, attrition high, and promotion slow, particularly during early career stages. Women also enter the workforce later, at an average age of 39 compared to 32 for men, due to unpaid care responsibilities (ILO 2024; Asian Development Bank Institute or ADBI 2023). Inflexible work conditions and limited re-entry pathways force many to exit formal employment mid-career (NITI Aayog 2022). In financial services, women comprise 31 percent of entry-level roles but only 13 percent of C-suite positions; in legal services, the share drops from 51 to 32 percent (Deloitte 2023; Dasra 2023).

These structural and sectoral barriers are mutually reinforcing: women's concentration in low-value roles restricts their bargaining power, while inflexible workplace norms and social expectations perpetuate their exclusion from leadership and innovation spaces (Kabeer 2012; World Bank 2022). Without institutional reforms, India's growth trajectory risks remaining numerically inclusive but substantively unequal. Sustained change will depend not only on where women work, but on whether they can thrive, advance, and influence the sectors driving India's economic future.

The figure 8.10 visualises how women's participation from education and workforce entry to leadership drops.

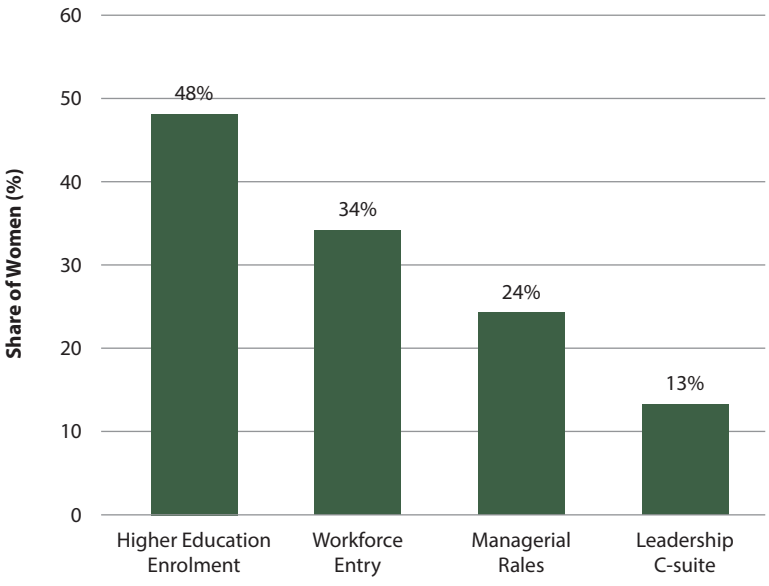


Figure 8.10: Challenge to Women's Participation

Source: Author's synthesis based on PLFS (2025), ILO (2024), MoSPI (2025), McKinsey (2025), V.V. Giri NLI (2024).

The evidence across sectors makes clear that India's challenge is not simply one of job creation, but of equitable participation and progression. Growth in high-potential industries has not automatically translated into inclusion: women remain clustered in low-value segments, limited by care responsibilities, mobility constraints, and restricted access to skills and networks. The structural patterns visualised above underscore that participation gaps widen at each career stage, even as education and digital access expand.

Closing these gaps requires targeted institutional reforms in skilling, workplace design, care infrastructure, and accountability systems. The next section outlines concrete policy measures that draw on the United Nations Development Programme's (UNDP's) WEE framework to translate these reforms into action.

The analysis of sectoral and structural barriers highlights where targeted interventions can create the greatest impact. The WEE framework offers a roadmap to convert these barriers into actionable levers of change. By aligning its seven drivers with India's high-growth sector strategies, women can move from the periphery of participation to the centre of economic transformation.

8.6. Accelerating Women's Empowerment – Leveraging The Seven Drivers of Change

Women's economic empowerment requires coordinated, multi-dimensional strategies that extend beyond workforce participation to encompass ownership, leadership, and voice. Using the seven WEE drivers as a guiding framework, the following section identifies sector- and system-level levers to enhance women's access, agency, and advancement across India's high-growth non-farm economy.

8.6.1. Building Assets: Education, Digital, Financial, and Property

Women own 13.3 percent of India's enterprises but hold only 5 percent of outstanding business credit (RBI 2022). Median loan size to women-owned MSMEs is one-third that of male-owned firms (Small Industries Development Bank of India or SIDBI 2025).

Asset-building opportunities for women are most advanced in fintech, e-commerce, EdTech/AI, and clean energy, where private and public initiatives consciously invest in women's digital and financial inclusion. Flagship programs such as Powering Livelihoods and Stand-Up India link skill-building with access to finance, enabling women to become operators and entrepreneurs in modern industries. Similarly, the Healthcare Sector Skill Council offers structured skilling pathways for women in technical roles.

However, in textiles, agro-processing, waste management, and manufacturing sectors, upskilling remains limited to low-level or operational training. Women entrepreneurs often rely on small-ticket SHG or Mudra loans, which are inadequate for capital-heavy industries like EVs or pharma manufacturing. While inclusion at the micro level has expanded, women's access to growth-oriented capital remains constrained by systemic and financial barriers.

8.6.1.1. Recommendation

- Develop gender-responsive credit products (e.g., guarantee-backed, blended finance) for capital-intensive green sectors.
- Expand blended online-offline skilling programs (SWAYAM, FutureSkills Prime) with placement guarantee.
- Fund technical upgradation to women at entry and midcareer levels, for example, via NIFTEM-K/T/T and design institutes in agro-food processing and textiles.
- Establish a brand-development fund and an export-readiness fund for women FPOs, MSMEs, and cooperatives.
- In e-commerce, integrate women-centric seller programs on ONDC and GeM, empowering women-owned MSMEs with digital storefronts and payment linkages.

8.6.2. Strengthening Visibility, Collective Voice, and Representation

Representation at the top is most visible in e-commerce and fintech, where Securities and Exchange Board of India's (SEBI's) board mandates and corporate diversity policies have helped increase the number of women in leadership and public forums. Senior women executives also hold influential roles in industry platforms like NASSCOM, ensuring that their voices shape policy and advocacy.

By contrast, manufacturing-heavy and infrastructure sectors – including electronics, EVs, renewables, and agro-processing – remain male-dominated both culturally and institutionally. Decision-making bodies such as Automotive Component Manufacturers Association (ACMA) and India Electronics and Semiconductor Asso-

ciation (IESA) have minimal female representation, limiting women's collective voice in shaping sectoral policies and reforms.

8.6.2.1. Recommendation

- Set gender-based placement targets (30–35 percent) in Sector Skill Councils (SSCs). Embed gender quotas and leadership pathways within Skill India and Green Skills missions.
- Co-design re-entry apprenticeship programs with industry (electronics, EVs, solar).
- Encourage sectoral women's networks to publish participation data annually in partnership with industry chambers (e.g., FICCI, CII).

8.6.3. Tackling Adverse Norms and Promoting Positive Role Models

Despite strong evidence that diversity improves organisational performance (McKinsey 2020), women hold only 17 percent of managerial positions and 7 percent of board seats in India (Deloitte 2023). The leadership gap is particularly stark in manufacturing and energy sectors (Dasra 2023).

Sectors such as fintech, e-commerce, AI, and education have begun normalising women's participation through public campaigns, mentorship programmes, and visibility initiatives. Efforts like NASSCOM's *#WomenInTech, Think Women,* and corporate networks such as eBay's *Women's Initiative Network* and *She Leads Tech* have created ecosystems of female leadership. These sectors increasingly host hackathons, awards, and mentorship circles that strengthen role models and community belonging.

In contrast, manufacturing-heavy and infrastructure sectors – renewable energy, EVs, textiles, insurance, pharma, electronics, and agro-processing – remain slow to challenge entrenched gender norms. Diversity is often treated as a peripheral goal rather than a growth driver. Networks such as *Women in Renewable Energy (WiRE)* and Mahila Arthik Vikas Mahamandal's (MAVIM's) SHG-based agro-processing initiatives offer promising examples but remain exceptions rather than norms.

8.6.3.1. Recommendations

- Encourage gender-inclusive employment practices by offering recognition or fiscal incentives to enterprises that maintain at least 30 percent certified female employees in client-facing or technical roles, verified through SSC placement data and credit-linked programs such as Mudra and Stand-Up India.
- Launch targeted fellowships for women in VLSI, embedded systems (MeitY 2024), EV repair, manufacturing, machine or operations management to build strong technical roles models.
- Encourage women's participation in industry-specific women's networking circles and mentorship groups through social media and digital connect programmes.
- Publicise women-led cluster models (textiles, agro-processing, renewables) through ONDC and Electronics and Communication Engineering (ECEH) platforms.
- Extend SEBI diversity disclosure requirements beyond listed firms.
- Institutionalise national awards and visibility campaigns under the Ministry of MSME for women innovators and manufacturers.

8.6.4. Ensuring Legal Protection and Reforming Discriminatory Regulations

In urban India, 45 percent of women decline job offers due to commute concerns (World Bank 2022). Public transport remains unsafe or irregular in peripheral industrial zones. Nearly 47 percent of Indian women report experiencing workplace sexual harassment (Bhaskar English 2024), yet only 3.5 percent formally report it. In addition, "night-work" bans in factories – though intended for protection – often function as exclusionary barriers.

Legal protections are strongest in fintech, e-commerce, insurance, healthcare, and EdTech, where investor scrutiny and corporate governance standards drive compliance with the Prevention of Sexual Harassment (PoSH) Act. These sectors also lead in progressive HR policies, offering extended parental leave, commute support, flexible work, and gender-

neutral promotion systems (Aon Hewitt; Willis Towers Watson 2024).

By contrast, textiles, agro-processing, waste management, and other manufacturing industries show weak compliance. Studies by Mazdoor Kisan Shakti Sangathan (MKSS) and The Ken reveal frequent absence of internal committees or awareness of PoSH obligations. Women in informal or semi-formal segments – especially textiles and waste – often lack contracts, grievance redressal, or social protection. Even where global value chains exert pressure, as in electronics or pharma manufacturing, gender equity remains treated as "good practice," not a legal obligation.

8.6.4.1. Recommendation

- Standardise working conditions and minimum wages for frontline staff, ensuring enforcement of fair labour standards and protection under PoSH and wage laws.
- Harmonise minimum wage and contract standards for all frontline female workers.
- Replace restrictive night-work bans with mandatory workplace safety standards (CCTV, transport, and grievance redressal).
- Include gender-safety scoring in ESG frameworks and public procurement evaluations.

8.6.5. Recognising, Reducing, and Redistributing Unpaid Work and Care

Care responsibilities remain the single largest constraint on women's economic activity. The average Indian woman spends 5.8 hours daily on unpaid care compared to 51 minutes for men (MoSPI 2024). Inadequate public childcare and workplace flexibility reinforce this "double shift." Flexible work options have grown post-pandemic, but only 14 percent of employers offer childcare support (Aon Hewitt 2023).

Fintech, AI/EdTech, and cybersecurity sectors have made tangible progress in redefining work flexibility as a talent-retention strategy. Hybrid and remote models are widely adopted, allowing women to balance care work without sacrificing career progression. Large corporates such as Tata Group, HCL, and Accenture have also institutionalised on-site childcare and support facilities.

By contrast, in manufacturing, healthcare, renewables, agro-processing, and waste management, long shifts, rigid schedules, and the absence of childcare infrastructure continue to exclude women with family responsibilities. Despite legal mandates, even hospitals employing millions of women rarely provide crèches or paid childcare support. In these sectors, "flexibility" still translates to predictable shifts rather than real autonomy.

8.6.5.1. Recommendation

- Operationalise National Policy on Women (2025) by offering fiscal incentives for employer-provided crèches. Integrate community childcare hubs into National Rural Livelihoods Mission (NRLM) and industrial parks.
- Offer tax rebates or social credits for employers providing flexible or remote work options.
- Train women re-entering the workforce in digital operations and remote management skills.

8.6.6. Improving Public Sector Practices in Employment and Procurement

Public procurement and employment practices are evolving positively in renewables, EVs, and electronics, driven by national priorities under Atmanirbhar Bharat and green growth agendas. These sectors have begun integrating gender considerations into skilling and vendor ecosystems through the Skill India Mission and specialised councils.

However, for sectors like textiles, agro-processing, and waste management, gender inclusion in government procurement remains absent. While MSME set-asides exist, there are no incentives or mandates linking public contracts with workforce diversity. Similarly, public skilling programs such as PMKVY have yet to evolve beyond generic IT modules to address advanced or gender-specific skill gaps in high-growth fields like fintech, AI, and cybersecurity.

8.6.6.1. Recommendation

- Incentivise companies with women-only training centres (modelled on Bihar's EV pilot) and link Skill Council for Green Jobs (SCGJ) curricula to placement targets for women, ensuring gender-responsive skilling pipelines.
- Link SCGJ funding to placement outcomes for women.
- Implement a cluster approach with government-backed procurement from women-led processing units, strengthening local employment under MSME and NRLM mandates. Mandate gender performance reporting in all publicly-funded programs.

8.6.7. Changing Business Culture and Practice

Progressive corporate cultures in e-commerce, fintech, EdTech/AI, and healthcare increasingly treat diversity as a strategic business asset. Over 40 percent of large IT and BFSI firms now conduct formal gender pay gap audits, while global pharma leaders like GlaxoSmithKline (GSK) and Novartis publicly disclose pay equity and leadership targets. Structured mentorship programs in firms like Infosys, Tata Consultancy Services (TCS), and major banks are reshaping promotion systems by embedding sponsorship for women.

In contrast, manufacturing, renewables, and agro-processing sectors continue to operate on legacy hierarchies and informal networks, where promotions depend on visibility and seniority rather than performance or inclusion. Gender pay audits are virtually absent, and women's progression into leadership pipelines is limited, despite growing female participation at entry levels.

8.6.7.1. Recommendation

- Enforce social security code implementation for platform workers, especially women gig workers. Mandate gender-pay-gap disclosure under RBI/ SEBI compliance frameworks (based on Compensation and Benefits Experts 2023), embedding accountability within corporate governance.
- Encourage corporates and public sector institutions to institutionalise transparent promotion pathways and gender parity audits to dismantle informal hierarchies.
- Support executive mentorship pipelines (sponsorship-based advancement) across industries.

8.7. Measurement of Inclusion in High-Growth Non-Farm Sector

Current efforts to strengthen women's economic empowerment in India remain fragmented, and their impact is largely unmeasured. In the absence of standardised data, it becomes difficult to identify successful initiatives, hold sectors accountable, or direct resources effectively. The data management and measurement can be accomplished through a national WEE dashboard. This authoritative, public-facing platform can be co-developed and published annually by MoSPI and NITI Aayog, aligning with India's SDG 5 and 8 commitments. Essential metrics must include:

- FLFPR by sector and region
- Gender wage gap and contract formality
- Percentage of women with social protection
- Percentage of firms meeting diversity targets
- Percentage of women with access to loans > ₹1 lakh

The dashboard must test the seven drivers across sectors in the Indian economy, leveraging and harmonising data from existing sources like PLFS, RBI, SEBI, corporate filings, and the Annual Survey of Industries. The dashboard's core utility lies in its ability to disaggregate data. Users must be able to compare performance across sectors (e.g., fintech vs. textiles) and states to pinpoint gaps and successes. It can introduce mandatory disclosures for certain indicators.

8.8. Conclusion: Converting Access into Agency

Women's participation in India's labour force remains low and uneven, marked by high NEET rates, wage gaps, and limited access to secure, non-farm jobs. Most women remain concentrated in

low-paying, informal agricultural or care-based work, reflecting persistent structural exclusion from growth-oriented sectors.

India's high-growth non-farm sectors, fintech, electronics, e-commerce, healthcare, EVs, renewable energy, agro-food processing, AI, EdTech, insurance, cybersecurity, and textiles, offer expanding opportunities for women's employment and enterprise. Realising this potential, however, demands closing gender gaps in skills, leadership, technology access, finance, and workplace equity.

Women's economic empowerment requires a multi-sectoral strategy that goes beyond skilling and inclusion rhetoric to tackle deep structural barriers. While progressive sectors such as fintech, e-commerce, EdTech/AI, and clean energy have improved women's access to digital and financial assets, traditional industries such as textiles, agro-processing, manufacturing, and renewables, lag due to limited skilling, inadequate finance, and weak institutional support. Advancing gender equality calls for gender-responsive finance and procurement, measurable leadership targets, safe and flexible workplaces, and investment in care infrastructure. Establishing a National Women's Economic Empowerment Dashboard will be essential to track progress, ensure accountability, and align public and private action.

High-growth non-farm sectors represent India's best chance to combine economic expansion with gender justice. However, inclusion without empowerment risks perpetuating a "new glass wall," where women remain present but peripheral. The seven WEE levers form an integrated framework to turn participation into agency, enabling women not only to join the economy but to shape its direction. By designing the next generation of growth to be gender-transformative, India can achieve prosperity that is both economically dynamic and socially just.

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Expanding Access to Affordable and Quality Childcare in India: Need for Alternate Approaches and Fresh Perspectives[1]

9

Akanksha Saluja, Himanshi Goel

9.1. The Childcare Imperative for Inclusive Growth

Closing India's childcare gap is not just a social priority but an economic imperative. Affordable and quality childcare has the potential to unlock millions of women's participation in India's workforce, driving inclusive and sustainable growth. Across the country, women – particularly in low-income households – spend a disproportionate share of their day on unpaid domestic and caregiving work, leaving little time for paid employment or personal advancement. According to the Time Use Survey (2024),[2] women aged 15–59 dedicate nearly 24 percent of their day (341 minutes) to unpaid care and domestic tasks, compared to just 3 percent (42 minutes) for men. This imbalance translates into a clear economic cost. In 2022, nearly 44.5 percent of women outside the workforce cited childcare or homemaking responsibilities as their main reason for non-participation.[3] Recent United Nations Development Programme (UNDP)–Dalberg estimates suggest that in urban low-income households alone, 9–10 million women could benefit from access to affordable childcare (Figures 9.1[4] and 9.2[5]). Extending this to rural areas would reveal an even larger, untapped demand – and with it, a transformative opportunity for economic participation and empowerment. Indeed, direct public investment equivalent to 2 percent of Gross Domestic Product (GDP) in the care sector could generate 11 million jobs, nearly 70 percent of which would go to women.[6]

Beyond its economic returns, early childhood care and education is also a constitutional commitment and a cornerstone of human development. Article 45 of India's Constitution recognises early childhood care and education as a state responsibility and the foundation for lifelong learning. Science reinforces this vision: 90 percent of brain development occurs before age six,[7] and quality care can yield annual returns of up to 10 percent through improved learning and reduced social costs.[8] In India, accessible childcare not only nurtures children and enables mothers to work but also keeps girls in school. For employers too, the dividends are evident –

71 percent of Indian firms report that childcare support enhances employee productivity and retention.[9]

Together, these insights affirm that childcare is both a constitutional duty and a smart economic investment – one that strengthens child development, advances gender equality, and builds the foundation for India's next decade of inclusive growth.

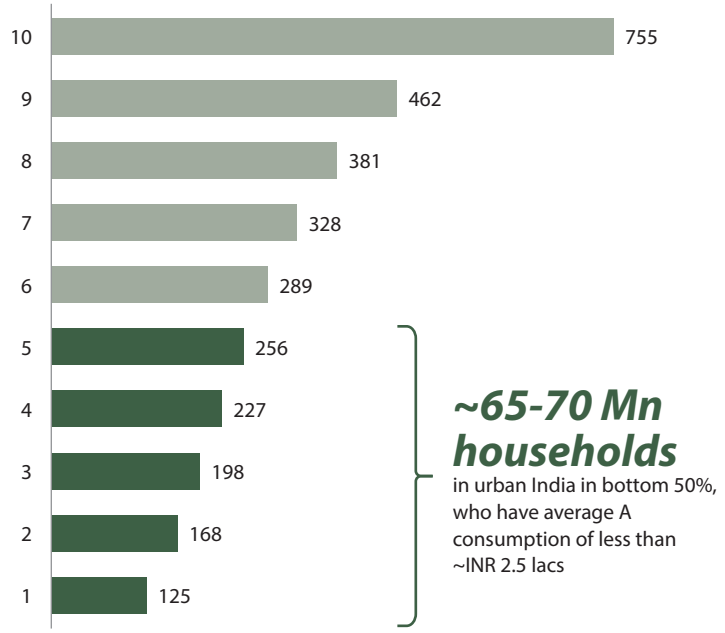

Figure 9.1: Average Annual Household Consumption Expenditure for Each Population Decile in Urban India (in INR ₹000)

Source: NSSO Household Consumption Expenditure Survey, 2022-23

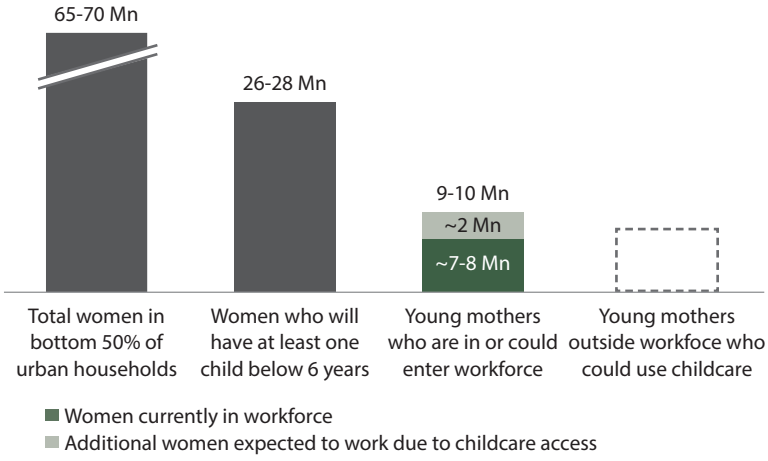

Figure 9.2: ~9-10 Million Women Who Work or Could Work Can Use Childcare, along with Many More Outside the Urban Workforce (Population, in millions)

Source: Dalberg Study

In this context, UNDP India, under the project "Boosting Female Labor Force Participation through a Strengthened Urban Care Ecosystem" in partnership with the Deendayal Antyodaya Yojana–National Urban Livelihoods Mission (DAY-NULM), Ministry of Housing and Urban Affairs (MoHUA), and supported by the Gates Foundation, is working to design robust childcare models, develop innovative financing mechanisms, and build evidence to catalyse greater public and private investment in India's care economy.

This chapter draws on key findings and programmatic learnings from UNDP's ongoing initiatives over the past year to outline actionable pathways for strengthening India's childcare ecosystem. It underscores that universal access to affordable, quality childcare – anchored in holistic child development and women's workforce participation – requires the active engagement of central and state governments, private sector, civil society, donors, and communities.

9.2. Pathways to Strengthen India's Childcare Ecosystem

9.2.1. Financing the Universal Childcare

9.2.1.1. Understanding the cost of care

Ensuring universal access to quality childcare will require not just policy intent but substantial and sustained investment. Current estimates[10] suggest that providing quality childcare typically costs around ₹3,800 per child per month. However, evidence from UNDP pilots and consultations with service providers indicates that only about 25–30 percent of this cost can realistically be recovered through user fee, especially among low-income households. The resulting financing gap underscores a systemic constraint: while demand for childcare is immense, the economics of provision remain unviable for both private and non-profit providers.

Despite significant progress, India's public spending on early childhood development

remains modest – nearly eight times lower (as a share of GDP) than what is required for universal coverage.[11] This shortfall calls for innovative financing strategies that combine public co-funding, philanthropic support, and modest user contributions.

9.2.1.2. Blended finance for sustainable childcare

Blended finance offers a promising pathway to build an inclusive and sustainable childcare ecosystem by combining public, private, and philanthropic capital. It helps share risks, attract new forms of financing, and make childcare affordable for low-income families while ensuring providers remain financially viable.

UNDP's pilot initiatives are currently testing how blended financing can make childcare sustainable and inclusive in practice. In Bawana, Delhi, a community-based childcare centre has been established in partnership with Mobile Crèches, supported by philanthropic funding and user fees of ₹1,000 per month from families. The model also converges with the Ministry of Women and Child Development's Integrated Child Development Services (ICDS) scheme to provide nutrition and health check-ups – creating a blended structure that integrates public support, community participation, and philanthropic investment to sustain operations.

In Hyderabad, a workplace-based childcare model with the Association of Lady Entrepreneurs of India or ALEAP Industry Association is being tested within an industrial cluster. Here, philanthropic funds support the initial set-up and operations, while the industry association contributes in-kind through space and project management. Employers or employees contribute user fees to meet recurring costs. Over time, the model aims to leverage Corporate Social Responsibility (CSR) funds from industrial units to bridge financing gaps and enable scale-up. This approach seeks to demonstrate how blended financing – anchored in public–private collaboration – can make workplace-linked childcare both affordable and sustainable, while improving women's participation, productivity, and retention in manufacturing clusters.

Beyond these two pilots, other pathways can help scale such innovations. To cushion early-stage risks, philanthropic capital can play a catalytic role – funding initial set-up and market development – while risk-mitigation tools such as breakeven support or outcome-linked incentives can safeguard providers against demand fluctuations. Additionally, revolving credit facilities equivalent to six months of operating expenditure can ensure service continuity. Meanwhile, public support – through infrastructure provision, rent waivers, or targeted subsidies – can anchor these centres within government systems. For instance, in Koraput, Odisha, the district administration repurposed community buildings into crèches using local development funds, showing how local innovation and resource convergence can make quality childcare both affordable and accessible

Together, these blended models are not just pilots but learning laboratories – building evidence on financial viability, women's employment outcomes, and child development. They demonstrate that with the right mix of capital, policy alignment, and institutional partnerships, childcare can evolve from a welfare provision into a sustainable, investable pillar of India's care economy.[12]

9.2.1.3. State responsibility and public financing

Sustained expansion of childcare services will depend on both short-term fiscal measures and long-term structural reform. In the short run, unutilised resources such as the Building and Other Construction Workers (BOCW)[13] cess can be channelled to meet the health and education needs of workers' children. Since 2005, ₹1.17 lakh crore has been collected under the Act, but only ₹67,670 crore has been spent, leaving over 40 percent unutilised. Redirecting a portion of these funds to support childcare would directly benefit working mothers in low-income and informal sectors.

States like Chhattisgarh have already demonstrated innovation by pooling funds from the District Mineral Foundation, CSR allocations, and the National Health Mission (NHM) to establish crèches in mining districts – strengthening healthcare access and workforce retention. Other states could replicate this model by earmarking a share of property tax

revenues for workplace-based childcare within industrial parks, just as they currently do for road or power infrastructure. The Telangana[14] State Industrial Infrastructure Corporation (TSIIC) has empowered industrial societies to allocate part of their maintenance budgets for crèches, illustrating how local advocacy can translate into institutional change.

In the long term, a strategic shift will be needed to increase the direct tax-to-GDP ratio and institutionalise care financing through budget tagging under Mission Shakti and DAY-NULM. States can also layer existing schemes – for instance, leveraging urban job guarantee schemes in Kerala and Rajasthan to cover crèche worker salaries, or drawing on the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) to fund childcare skilling.

9.2.2. Financial and Non-financial Incentives for Employer Participation

Small and Medium Enterprises (SMEs) face particular challenge in meeting the childcare obligations[15] outlined under the Maternity Benefit (Amendment) Act, 2017, due to high set-up and operational costs, space constraints, and limited access to shared facilities.

Expanding the scope of childcare beyond the workplace – by linking it with government-supported transport schemes such as PM-eBus Sewa and PM E-Drive – could make childcare more accessible for women who commute long distances.[16] To encourage compliance and innovation, a combination of financial and non-financial incentives is critical. Tax credits, subsidised access to third-party crèches, and recognition schemes for family-friendly workplaces can motivate employers to invest in childcare or partner with accredited providers. International experiences from Turkey, Chile, and Mexico offer valuable lessons (Box 9.1).

9.2.3. De-risking the Market for Childcare Service Provisioning

Affordability remains one of the most significant barriers to expanding childcare services. Households earning ₹2–5 lakh annually can typically allocate only ₹12,000–15,000 per year for childcare[17] – far below the current cost of provision.

Governments can support private-sector service providers in developing and testing affordable childcare delivery models by offering initial grants and usage-based subsidies. Such support enables providers to design viable business models that cater to low and middle income families. Ecuador offers a strong example: under the Ministry of Economic and Social Inclusion (MIES) programmes Centros de Desarrollo Infantil, most childcare centres are operated through third-party agreements with local governments, NGOs, community groups, and churches, which receive public funding to cover operating costs.[18]

Complementary supply-side interventions – such as subsidising workforce training, developing digital learning content, and providing low-rent access to public buildings like Anganwadi centres and community halls[19] – can further reduce costs and expand outreach.

Box 9.1. Global Examples of Public-Private Partnership (PPP) Models and Incentives for Private Sector Childcare Provisioning

Tax credits/exemptions on childcare expenses of employers: In Turkey, employer benefits offered to female employees for kindergarten and day-care are exempted from income tax.

Crèches set up through public-private partnerships: In Mexico, the Social-Security Institute (IMSS), a governmental organisation signs direct sub-contracts with a company or group of companies, where employers can establish and manage daycare centres in line with IMSS' national quality standards; in return, IMSS pays a fee for each child enrolled.

Access to subsidised third-party crèches: In Chile, Article 203 of Chile's Labour Code lets employers meet the crèche obligation by offering vouchers for accredited private providers, some of whom receive public subsidies.

9.3. Strengthening Data, Planning, and Monitoring Systems for Childcare

India's childcare landscape remains fragmented, marked by wide disparities in quality, safety, and accessibility. UNDP's study across six cities revealed a striking visibility gap: of over 150 non-profit childcare providers contacted, only a handful had any online presence. In the absence of a central registry or mapping system, even basic information proved difficult to access, forcing reliance on informal networks such as Mobile Crèches, SEWA, and local Non-governmental Organisations (NGOs) to identify centres. Weak monitoring under existing legal mandates – such as the Maternity Benefit Act (MBA), BOWCA, and National Rural Employment Guarantee Act (NREGA) – further compounds the problem, leaving large sections of the workforce and families without reliable childcare options.

Making childcare visible and credible therefore begins with data. Establishing a national childcare registry and digital mapping platform – building on models such as UNDP's Care Georeferencing initiative in Latin America[20] – can help identify and classify childcare providers across public, private, and community sectors, and match them to families based on local demand. Robust data can also underpin better policy design, monitoring, and financing, helping state and municipal governments plan childcare services where they are most needed.

Access also depends on how childcare infrastructure is planned and delivered. Current population-based norms for Anganwadi centres – one for every 400–800 people – leave large urban slums, peri-urban belts, and tribal settlements underserved. Introducing micro-AWCCs (Anganwadi-cum-Crèche)[21] – small, flexible centres serving 10–15 children – can help bring childcare closer to where families live and work. For such models to succeed, budgets must account for real implementation costs such as rent, community engagement, and workforce training – elements often overlooked in urban childcare planning.[22] UNDP's Bawana pilot in Delhi (Figure 9.3) demonstrates why these factors matter: six months into operation, 97 percent of parents cited proximity and their child's learning and development as the main reason for enrolment, showing that convenience and quality drive uptake and trust in formal childcare.

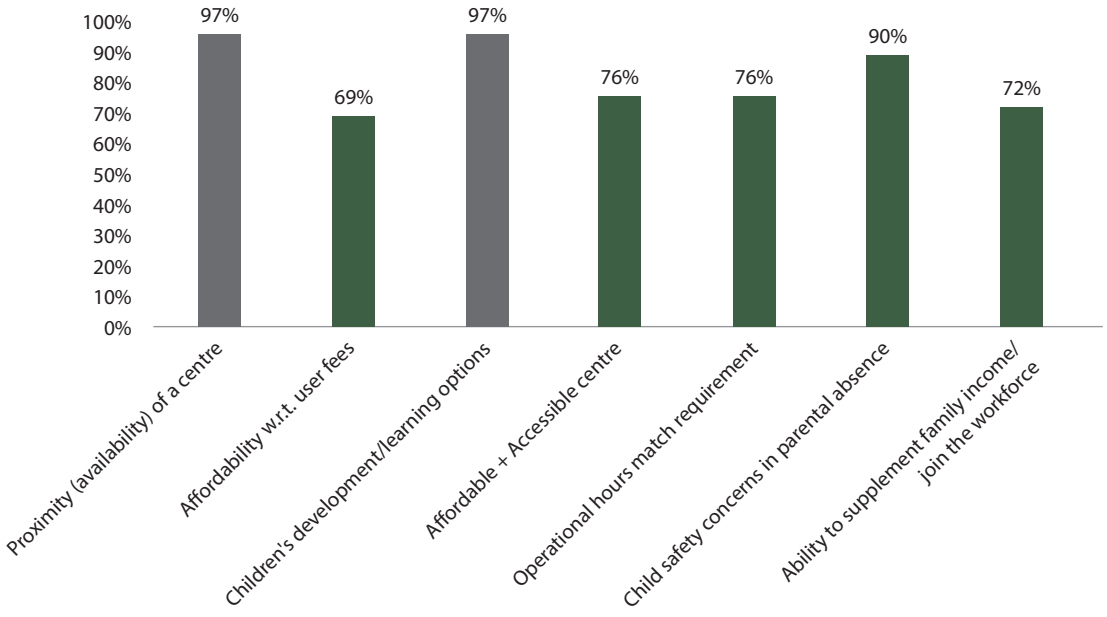

Figure 9.3: Primary Reasons for Availing Childcare Centre

Source: UNDP's Bawana Pilot, Delhi

Embedding care into urban and industrial planning is equally crucial. Designating crèche spaces within town master plans or linking childcare facilities to industrial cluster development programmes, such as the Micro and Small Enterprises Cluster Development Programme (MSE-CDP) and the Integrated Textile Parks Scheme – can help position childcare as essential social infrastructure. Municipalities in Gurgaon have already begun experimenting by reserving specific buildings for day-care community use.[23]

Ensuring accountability and continuous improvement will require stronger monitoring and reporting systems. States that have yet to adopt MBA-specific childcare rules should be encouraged to do so, while centralised databases could track compliance, coverage, and outcomes. Voluntary certification[24] mechanisms – like China's Family-friendly Workplace Certification developed with United Nations Children's Fund (UNICEF) – can further encourage employers to adopt childcare-friendly policies through structured recognition.

Finally, flexibility in childcare regulations like MBA can enhance employer participation and uptake. Allowing firms to subsidise access to accredited childcare centres near employees' homes, instead of mandating on-site facilities, would address practical constraints around space and commuting. Employers' associations, such as those in Karnataka, have already proposed adaptable norms like exempting multi-storey shops from outdoor play area requirements and enabling cost-sharing arrangements.[25]

A responsive, data-driven ecosystem – grounded in flexibility, accountability, and local planning – can transform childcare from a fragmented service into a shared public good, embedded within India's urban design, labour systems, and social infrastructure.

9.4. Building a Skilled and Professional Care Workforce

India's care workforce forms the foundation of childcare delivery yet remains undervalued and under-supported across the ecosystem. Workers face low wages, limited benefits, and inadequate training opportunities, resulting in high attrition and uneven service quality. Many childcare professionals enter the sector informally, without recognized certification or career pathways. Existing diploma and undergraduate programmes are often lengthy, costly, and misaligned with prevailing wage norms – factors that contribute to nearly one in three women exiting the sector each year.[26]

Professionalising the childcare workforce begins with clearly defining roles across the sector. A comprehensive skill gap assessment, led by the National Skill Development Corporation (NSDC), could help identify distinct functions within the childcare ecosystem – ranging from centre managers and early childhood educators to caregivers and administrative staff. This would lay the foundation for standardised job roles, competency frameworks, and targeted skilling initiatives.[27] Globally, countries like Australia offer useful models. The Australian Bureau of Statistics, for instance, identifies more than seven childcare-related occupations – including childcare workers, centre managers, child and youth residential care assistants, and child safety officers – each with defined competencies and progression pathways.[28]

Building on these lessons, India can strengthen its own skilling ecosystem by updating National Skills Qualification Framework (NSQF)-aligned curricula to reflect the diversity of emerging urban childcare models – such as crèches, at-home care, and community-based centres. Embedding Early Childhood Care and Education (ECCE) competencies like socio-emotional learning, effective communication, and English proficiency would further enhance employability and elevate the professional status of childcare workers.[29]

Equally important is creating modular, tiered curricula[30] that recognise diverse entry points. By integrating Recognition of Prior Learning (RPL), experienced yet uncertified caregivers can gain formal credentials through bridge training and assessment. Short 30–60-hour modules on nutrition, health screening, and responsive caregiving – complemented by optional courses on digital literacy or inclusive play – can make

upskilling accessible and continuous. Through National Skills Qualification Framework (NSQF) alignment and credit transfers under schemes like Pradhan Mantri Kaushal Vikas Yojana (PMKVY) or Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY), childcare can evolve into a dignified and aspirational career path for both women and men.

Promoting Shared Care Responsibilities and Parent Engagement

The future of childcare depends not only on investment and infrastructure but also on transforming social norms. In India, caregiving continues to be viewed as women's work, with limited participation from men – only about 25 percent of Indian men feel as responsible for unpaid care work as their partners, compared to 70–90 percent in most other countries.[31] This stark gap highlights how deeply entrenched gender norms shape care roles. Shifting this perception is central to building a gender-equitable care system that recognises caregiving as a collective social and economic responsibility.

Encouraging men to join caregiving professions – as early childhood educators, caregivers, or health workers – can normalise shared roles and challenge stereotypes. International examples, such as Africare's Male Empowerment Project in Zimbabwe, shows how targeted training can equip men to contribute meaningfully to caregiving. Similarly, moving beyond Mothers' Groups to institutionalise Parents' Groups under initiatives like Poshan Abhiyaan can shift community accountability to both parents, fostering inclusion, and collective responsibility.

At the same time, greater attention must be given to girls' enrolment, attendance, and retention[32] in early learning programmes. Integrating these priorities into training, outreach, and monitoring efforts helps ensure that childcare interventions advance both gender equality and educational outcomes. Sustained community engagement and awareness campaigns are also key to building trust in professional, institutionalised childcare – helping families view it not as a substitute for maternal care but as a complementary, developmental support for children.[33]

Parent engagement at home plays an equally crucial role. While the Palna guidelines encourage monthly meetings and home visits, a more structured approach is needed to sustain meaningful interaction. Public-private partnerships with organisations such as the Van Leer Foundation and IDEO offer promising examples: The Paalan 1000[34] initiative provides practical, evidence-backed prompts for parents during the first 1,000 days of life, while IDEO's Vroom programme[35] shows how everyday moments – like talking during chores or play – can strengthen cognitive and emotional development.

Together, these actions can form the foundation for a resilient and inclusive childcare ecosystem – one that nurtures children's development, empowers women's economic participation, and strengthens the social and economic fabric of India's growth story.

Endnotes

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Technology for Livelihoods: Digital Transformation and Inclusive Growth in India

10

Ramesh Srivatsava Arunachalam

10.1. Strategic Context

Between 2023 and 2025, India witnessed one of the most sweeping technology-driven transformations in its livelihood ecosystem, fundamentally reshaping how millions earn, work, and build enterprises. This chapter explores the contours of this digital revolution, interrogating whether technology has genuinely democratised economic opportunities or inadvertently amplified existing disparities. The analysis reveals a complex narrative of both remarkable progress and persistent challenges that will define India's economic trajectory for the coming decade.

10.2. Introduction: The Technology-Livelihood Nexus in Contemporary India

India's digital transformation has progressed from the foundational connectivity of Digital India 1.0,[1] through the service delivery innovations of 2.0, to the emerging 3.0 paradigm – an evolution that is far more than technological upgrade. It represents a fundamental reimagining of how economic opportunities are created, accessed, and sustained.[2] This transition toward AI-driven governance and platform-mediated livelihoods has placed technology at the heart of India's development narrative, while simultaneously raising profound questions about equity, inclusion, and the very nature of work in the digital age.[3] The period from 2023 to 2025 has witnessed an acceleration of these trends, with technology adoption rates surpassing even the most optimistic projections while revealing unexpected patterns of both convergence and divergence across different segments of society.

The analytical framework employs a multi-dimensional lens, examining technology adoption patterns across demographic segments, measuring income elasticity of digital interventions, evaluating resilience metrics for digitally-enabled livelihoods, and conducting comparative analysis with global digital transformation models.[4] This comprehensive methodology moves beyond reductive narratives of technological determinism, instead highlighting the complex interplay between

digital tools, human capabilities, institutional frameworks, and socioeconomic outcomes. The research draws upon extensive field studies across twelve states, encompassing urban megacities and remote tribal villages, capturing the full spectrum of India's digital transformation experience with regard to livelihoods.

10.3. Government-Led Digital Architecture: The Foundation of Transformation in Livelihoods

The Indian state's role in shaping the digital transformation has been both ambitious and unprecedented in scale, with national platforms and initiatives providing the foundational architecture upon which private innovation has thrived. Table 10.1 provides an overview of the National Digital Architecture for Livelihoods – Coverage and Outcomes as of 2025.

The Digital India Land Records Modernization Programme (DILRMP 2.0) exemplifies this approach, with blockchain-enabled land titling revolutionising collateral-based credit access across 92 percent of districts, enabling 2.3 crore previously unbanked farmers to access formal financial services.[6] Similarly, the electronic National Agriculture Market (e-NAM) 3.0 platform has transformed agricultural marketing through AI-powered price discovery mechanisms that now connect 1.79 crore farmers across 1,522[7] mandis. By facilitating transactions worth ₹1.74 lakh crore annually and reducing intermediation costs by an average of 15 percent, it has introduced new levels of transparency and efficiency into India's agri-market ecosystem.[8]

The One Nation One Ration Card (ONORC) system represents another critical intervention, providing a technology backbone that supports 80 crore beneficiaries and ensures food security for migrant workers who previously lost access to subsidised rations when crossing state boundaries.[9] This system's integration with the enhanced JAM Trinity 2.0 – the convergence of Jan Dhan accounts, Aadhaar authentication, and mobile connectivity – has achieved remarkable 99.7 percent authentication success rates, enabling seamless direct benefit transfers (DBTs) that have saved the exchequer ₹2.23 lakh crore through elimination of ghost beneficiaries and reduction of leakages.[10] The AGRISTACK

Table 10.1: National Digital Architecture for Livelihoods – Coverage and Outcomes (2025)[5]

Intervention	2025 Coverage / Scale	Outcome Signal	Distributional Note
Digital India Land Records Modernization Programme (DILRMP 2.0) (land)	92% districts	Collateral credit enabled for 2.3 crore farmers	Credit deepening in agrarian districts
electronic National Agriculture Market (e-NAM 3.0)	1.79 crore farmers; 1,522 mandis	₹1.74 lakh crore/year; ~15% lower intermediation	Stronger price signals; logistics tie-in
One Nation One Ration Card (ONORC)	80 crore beneficiaries	Portable food security for migrants	Reduces urban vulnerability
Jan Dhan accounts, Aadhaar, and Mobile (JAM 2.0)/ Direct Benefit Transfers (DBT)	99.7% auth. success	₹2.23 lakh crore savings (leakage reduction)	DBT reach to last-mile
AGRISTACK	14 crore farmer records	Precision targeting, advisory, credit link	Data-driven agronomy at scale
Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) digital	13.82 crore workers	Wage delay 45→8 days; ghost workers –38%	Predictable income smoothing
Skill India Digital	1.3 crore candidates	+34% job placements	Youth transition support

Source: Compiled by author from several sources through triangulated research

initiative takes this integration further, creating a unified farmer database that integrates land records, crop patterns, soil health data, and credit histories for 14 crore farmers, enabling precision agriculture and targeted policy interventions.[11]

The transformation of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) through digital technologies illustrates how traditional welfare programs can be revolutionised through technology. Real-time geo-tagging, biometric attendance, and drone monitoring now cover 13.82 crore active workers, reducing wage payment delays from 45 days to 8 days while eliminating 38 percent of ghost workers from muster rolls.[12] Meanwhile, the Skill India Digital Hub has emerged as a sophisticated platform for human capital development, utilising AI-powered competency mapping and job matching algorithms to connect 1.3 crore registered candidates with employment opportunities, achieving a 34 percent improvement in job placement rates compared to traditional methods.[13]

State governments have demonstrated remarkable ingenuity in tailoring national frameworks to local needs. with Telangana's Rythu Bandhu app has reached 64 lakh farmers, disbursing ₹58,000 crore in direct income support with an accuracy rate of 99.2 percent.[14] Kerala's Kudumbashree Digital Mission has successfully digitsed 45 lakh women self-help group (SHG) members, creating one of the world's largest women's economic empowerment platforms that combines financial services, skill development, and market linkages.[15] Gujarat's i-Kisan Portal 2.0 integrates 14 different agricultural services for 56 lakh registered users, while Tamil Nadu's Uzhavan App provides real-time agricultural advisory in Tamil to 72 lakh farmers – underscoring how vernacular interfaces can be critical drivers of adoption.[16,17]

10.4. Agricultural Revolution: Technology Transforming Traditional Farming

The digital transformation of agriculture marks one of the most profound shift in India's rural economy, with technology adoption levels unimaginable just five years ago. Under the Kisan Drone scheme, 15,000 drones have been deployed for precision pesticide application across 2.5 million hectares, reducing chemical usage by 23 percent while improving yields by an average of 18 percent.[18] This is complemented by a network of 50,000+ IoT sensors providing hyperlocal soil moisture, weather, and crop health data that enables farmers to make data-driven decisions about irrigation, fertilisation, and harvest timing.[19] The Indian Space Research Organisation's (ISRO's) satellite imagery analytics program now monitors crop health across 140 million hectares, providing early warning systems for pest attacks and weather events that have helped prevent crop losses worth ₹45,000 crore.[20] Table 10.2 offers a snapshot of these AgriTech interventions.

Table 10.2: Agritech Interventions – What Changed on the Farm

Vector	2025 Scale / Adoption	Benefits
Kisan Drones	15,000 units; 2.5 million ha	Reduced pesticide use; enhanced crop yields; lowered input costs and environmental impact.
IoT Telemetry	50,000 + sensors	Real-time soil and crop data improved irrigation and fertilisation efficiency, saving water and fertiliser inputs.
ISRO Satellite Analytics	~140 million ha monitored *(nationwide coverage approx.)*	Enabled early warnings on droughts and crop stress; preventive action helped avert multi-thousand-crore losses and enhanced resilience.
e-Mandi Integration (e-NAM 3.0)	585 markets	Transparent price discovery and digital payments reduced middlemen and logistics costs for farmers.
Blockchain Traceability	23 export commodities	Boosted trust in global markets; traceable produce earned much higher export value.
AI-Driven Logistics / Cold Chain	Expanding networks across states	Reduced post-harvest losses and significant annual savings through optimized storage and transport.

Vector	2025 Scale / Adoption	Benefits
Alternative Credit Scoring	2.3 crore farmers covered	Access to formal credit at interest rates much below informal lenders; improved financial inclusion.[21]
Parametric Insurance	5.2 crore beneficiaries	Automated claim settlements within 72 hours reduced distress and restored farmer liquidity after shocks.
Rural UPI in Agriculture and Allied Activities[22]	489 million rural users	Enabled ₹3.2 lakh crore in secure digital transactions; deepened financial access and market integration.

Source: Compiled by author through triangulated research from multiple official and industry sources.

Market integration through digital platforms has fundamentally altered agricultural value chains, with 585 e-mandis facilitating transparent price discovery and reducing transportation costs through optimised logistics networks.[23] The adoption of blockchain-based traceability across 23 agricultural export commodities has opened new international markets, driving a 27 percent increase in exports to countries that mandate supply chain transparency.[24] AI-driven route planning and cold chain management have reduced post-harvest losses from 23 percent to 18 percent, saving approximately ₹92,000 crore worth of agricultural produce annually.[25] Such research (including technological interventions) are creating a multiplier effect, with every rupee invested in agricultural technology generating ₹13.85 in economic returns according to recent impact assessments.[26]

Financial technology has emerged as a critical enabler of agricultural transformation. According to NABARD, alternative credit scoring models – leveraging satellite imagery, mobile phone usage patterns, and digital transaction histories – have enabled 2.3 crore previously unbanked farmers to access formal credit at interest rates 8-12 percent lower than informal sources.[27] Weather-indexed parametric insurance now covers 5.2 crore farmers with automated claim settlements occurring within 72 hours of triggering events, compared to the months-long delays typical of traditional insurance.[28] The penetration of Unified Payments Interface (UPI) in rural areas has reached 68 percent, with 489 million rural users conducting agricultural transactions worth ₹3.2 lakh crore, fundamentally changing how agricultural commerce operates.[29] Box 10.1 presents an ongoing case study on use of technology for agriculture livelihoods.

BOX 10.1. Technology Transforming Agricultural Livelihoods: The Project Saagu Baagu Revolution in Indian Chilli Farming

In the chilli fields of Telangana, where traditional farming methods have persisted for generations, a remarkable transformation is unfolding through Project Saagu Baagu – a pioneering public-private partnership that demonstrates how precision farming technologies can revolutionise smallholder agriculture. This initiative,[30] addresses a fundamental challenge facing India's agricultural sector: how to enhance the productivity and income of small and marginal farmers who typically cultivate less than five acres of land. The project focuses on Khammam district, where chilli farming represents both enormous potential and significant challenges – farmers here produce the prized Teja variety that commands premium prices in export markets, yet they have historically struggled with inconsistent yields, pest management issues, and opaque market systems that erode their profits. By creating a comprehensive digital ecosystem that bridges the gap between cutting-edge agricultural technology and grassroots farming communities, Project Saagu Baagu serves as a blueprint for how technology can democratise access to precision farming techniques that were once available only to large-scale agricultural operations.

The technological architecture of Project Saagu Baagu integrates multiple layers of innovation to create a seamless support system for farmers throughout the crop cycle. At its foundation lies the Agricultural Data Exchange (ADeX). This is India's first data exchange platform for farmer related services, which enables bidirectional

data sharing between government and private sectors while maintaining farmer privacy and consent protocols. This platform powers several breakthrough interventions: KrishiTantra's AI-driven soil testing service delivers comprehensive analysis of twelve soil parameters within twenty minutes – a dramatic improvement from the traditional twenty-five day laboratory process – enabling farmers to make precise, data-driven decisions about fertiliser application and soil management. The project's WhatsApp-based AI chatbot is said to provide advisories to over 5,000 registered farmers, offering real-time guidance on pest management, weather patterns, and cultivation practices tailored to local conditions, and individual farm characteristics. AgNext's stereoscopy-based quality testing machines, installed at agricultural markets, use artificial intelligence to provide objective quality certificates that evaluate pungency levels, aflatoxin presence, and chemical composition – replacing the subjective visual inspections that previously led to arbitrary pricing. The Kalgudi e-commerce platform completes the value chain by connecting farmers directly to buyers, eliminating multiple layers of intermediaries and enabling transparent price discovery. Community Resource Persons (CRPs) equipped with PICO projectors[31] conduct village-level training sessions, while the Kisan Diary Enterprise app helps farmers maintain digital records of their farming operations, creating a comprehensive data trail that can be leveraged for credit access and subsidy programs.

The measurable impact of these technological interventions reveals the transformative potential of precision farming for smallholder agriculture. Among the 7,000 farmers enrolled in the pilot phase, chilli yields have increased from twenty-five quintals per acre to thirty quintals per acre, while farmers report earning an additional ₹1,870 per hundred kilograms through the digital marketplace – gains attributed to reduced commission fees, lower transportation costs, and transparent pricing mechanisms. The project's success extends beyond immediate economic benefits to create systemic changes in farming practices: adoption of Integrated Pest Management techniques has reduced pesticide costs while improving crop health, drip irrigation systems have optimised water usage in a water-scarce region, and regular soil testing has shifted farmers from blanket fertiliser application to targeted nutrient management. Individual success stories, like that of farmer Banoth Ravi whose annual production increased by 20 percent while cultivation costs decreased significantly, demonstrate how technology adoption creates a virtuous cycle of improved practices, higher yields, and increased investment capacity. As Project Saagu Baagu moves from pilot stage toward scaling its reach to100,000 farmers across ten districts and five crop value chains, it offers crucial lessons for agricultural transformation in the developing world. Chief among them are the importance of building trust through local community networks, the need for continuous capacity building to ensure technology adoption, and the critical role of public-private partnerships in creating sustainable agricultural innovation ecosystems. The project's evolution into Saagu Baagu 2.0, which will leverage farmer producer organisations and expand to crops beyond chilli, represents not just an expansion of scope but a validation of technology's potential to address the twin challenges of food security and farmer prosperity in an era of climate change and market volatility.

10.5. MSME and Nano-Enterprise Digital Transformation

The digital transformation of India's 6.82[32] crore Micro, Small, and Medium Enterprises (MSMEs) (Table 10.3) represents a critical component of the inclusive growth agenda, with technology adoption rates varying significantly across sectors, regions, and enterprise sizes. The Government e-Marketplace (GeM) has emerged as a game-changing platform, generating ₹5 lakh[33] crore in gross merchandise value with more than 23 lakh[34] sellers and service providers, democratising access to government procurement opportunities that were previously accessible only to large corporations.[35] E-commerce platforms have created dedicated programs for small enterprises, with Amazon Saheli supporting 1.2 lakh women entrepreneurs and Flipkart Samarth connecting 5 lakh artisans to national and international markets, generating average income increases of 45 percent for participating sellers.[36]

Table 10.3: MSME Digitisation – Access, Production, and Finance

Dimension	2025 Status	Outcome Signal
GeM marketplace	₹5 lakh crore GMV; more than 23 lakh sellers	SME access to public procurement
Women-led e-commerce	Amazon Saheli 1.2 lakh; Flipkart Samarth 5 lakh	Avg. income +≈45% for participants
Factory digitisation (IoT)	34% of MSME manufacturers	Efficiency +23%
3D printing	8,500 MSMEs	Dev cycles: months → weeks
Textile CV QA	Sector deployments	Defects –31%; export readiness
Services → cloud	42% service MSMEs	Information technology (IT) costs –58%
Digital lending	₹2.8 lakh crore disbursed	Turnaround time (TAT): weeks → hours (over-indebtedness risks)

Source: Compiled by author from several sources through triangulated research

Manufacturing MSMEs are steadily integrating Industry 4.0 technologies[37] though progress remains uneven. About 34 percent have adopted basic Internet of Things (IoT) systems for inventory management and quality control, resulting in average efficiency improvements of 23 percent.[38] The use of 3D printing by 8,500 MSMEs for rapid prototyping has shortened product development cycles from months to weeks, enhancing their competitiveness against larger firms.[39] In the textile sector, computer vision-based quality control systems has been especially transformative, reducing defect rates by 31 percent and enabling MSMEs to meet international quality benchmarks.[40] Yet, the digital divide persists: while 67 percent of medium enterprises deploy advanced digital technologies, only 12 percent of micro-enterprises have done so.[41]

The service sector has shown more rapid digital adoption, with 42 percent of service MSMEs migrating to cloud-based operations, reducing IT infrastructure costs by an average of 58 percent.[42] Digital skills training programs have reached 87 lakh micro-entrepreneurs through online platforms, with participants reporting average revenue increases of 34 percent within six months of training completion.[43] The fintech lending ecosystem has proven especially transformative, disbursing ₹2.8 lakh crore through digital platforms while cutting loan processing times from weeks to mere hours. At the same time, concerns are surfacing around over-indebtedness and predatory lending practices in certain segments.[44]

10.6. The Platform Economy and Livelihoods: Redefining Work and Opportunity

The explosive growth of India's platform economy (Table 10.4) has created entirely new categories of livelihood opportunities while simultaneously challenging traditional notions of employment, worker rights, and social protection. The hyperlocal delivery sector alone employs 45 lakh delivery partners across food, grocery, and medicine verticals, with platforms like Swiggy, Zomato, and Blinkit becoming critical infrastructure for urban India.[45] Skill-based platforms have created opportunities for 23 lakh professionals ranging from plumbers and electricians on Urban Company to real estate agents on No Broker, with average earnings 40 percent higher than traditional informal sector wages.[46] Agricultural platforms like DeHaat and AgroStar collectively serve 78 lakh farmers, providing input supplies, credit, and market linkages while generating valuable data on crop patterns and farming practices.[47]

The advent of the e-Shram portal, with 29.5 crore unorganised workers registered, represents a significant step toward formalising the informal economy and extending social protection to platform workers.[48] Pilot programs for portable benefits in Karnataka and Rajasthan covering 2.3

Table 10.4: Platform Labour – Signals to Watch

Indicator	2025 Reading	Inclusion/Risk Note
e-Shram coverage	29.5 crore workers	Gateway to protections
Portable benefits pilots	2 states; 2.3 lakh workers	Inter-platform continuity
Worker collectives	4.5 lakh members	New bargaining forms
Income volatility	67% >30% MoM	Credit exclusion risk

Source: Compiled by author from several sources through triangulated research

lakh gig workers are testing models where benefits travel with workers across platforms, though implementation challenges remain significant.[49] The formation of app-based worker collectives with 4.5 lakh members signals the emergence of new forms of labour organisation adapted to the digital age, using WhatsApp groups and digital platforms to coordinate collective action.[50] Earned wage access platforms have provided liquidity to 67 lakh workers, allowing them to access salary advances at reasonable rates, though regulatory frameworks for these services remain underdeveloped.[51]

Yet risks remain pronounced: many workers experience over month-on-month income volatility, exposing them to sharp income shocks, while credit exclusion persists for most, as unstable earnings and lack of formal records hinder access to loans or financial safety nets. These trends underscore the need for a regulatory and financial architecture that recognises platform work as a durable part of India's labour ecosystem.

Furthermore, critical analysis reveals that while platforms have created unprecedented opportunities for income generation and flexibility, they have also introduced new forms of precarity and inequality.[52] Algorithmic management systems that determine work allocation, pricing, and ratings create power asymmetries that workers have limited ability to contest. Income volatility remains a significant challenge, with 67 percent of gig workers reporting month-to-month income variations exceeding 30 percent, making financial planning and access to credit difficult.[53] The absence of traditional employment benefits – health insurance, retirement savings, paid leave – means that platform workers bear risks that were previously shared between employers and the state.

10.7. Financial Technology for Livelihoods: The Great Democratisation

The fintech revolution has fundamentally transformed India's financial landscape, with digital payments, lending, and insurance reaching populations that were historically excluded from formal financial services. The UPI ecosystem has achieved remarkable rural penetration with 489 million rural users, representing 68 percent year-on-year growth and facilitating a shift from cash-based to digital transactions even in remote villages.[54] Building on this momentum, the Reserve Bank of India's (RBI's) digital rupee pilots across 15 cities, involving 50 lakh users, represent the next frontier, with the potential for programmable money to transform government welfare delivery and deepen financial inclusion.[55] The Buy Now Pay Later (BNPL) market has burgeoned to ₹45,000 crore, serving 2.8 crore small traders who rely on it for inventory financing. However, rising default rates in certain segments are drawing increased regulatory scrutiny.[56]

Technologically, BNPL models leverage AI-based credit scoring, alternative data analytics, API-driven integrations with e-commerce platforms, and real-time risk assessment engines to approve microloans within seconds. These tools extend credit to customers without traditional collateral but also introduce new risks – rising defaults in certain segments have prompted closer regulatory oversight. The evolution of BNPL exemplifies how data infrastructure, behavioural analytics, and embedded finance are reshaping India's credit landscape, blurring the line between consumption and enterprise finance.

AI-driven credit scoring has enabled 4.2 crore new-to-credit customers to access formal financial services, using alternative data sources including mobile phone usage, utility bill payments, and social media activity to assess creditworthiness.[57] Peer-to-peer lending platforms have disbursed ₹18,000 crore, creating a parallel financial system that operates outside traditional banking channels while raising questions about systemic risk and consumer protection.[58] App-based microfinance has reached 3.7 crore borrowers[59] accessing sub-₹50,000 loans, with instant disbursement and flexible repayment options, though interest rates often exceed 30 percent annually when all charges are included.[60]

The insurance technology sector has achieved breakthrough innovations in product design and delivery, with parametric insurance models[61] providing automated payouts to 82 lakh farmers within 72 hours of triggering events, eliminating the protracted claims processes that once deterred insurance adoption.[62] Micro-insurance products tailored for gig and informal workers have sold 5.6 crore policies, providing basic protection for previously uninsured populations – though payout levels often remain insufficient for catastrophic shocks.[63] AI-powered claims processing has reduced settlement times from 30 days to 3 days for health and vehicle insurance, improving customer satisfaction while reducing operational costs for insurers.[64]

10.8. Technology for Marginalised Communities: Progress and Persistent Gaps

While India's digital transformation has been remarkable in scope and speed, ensuring inclusive access for marginalised communities remains a critical challenge requiring targeted interventions and innovative approaches. Satellite broadband initiatives by OneWeb and Bharat Sanchar Nigam Limited (BSNL) are connecting 4,000 remote villages that were previously considered economically unviable for terrestrial connectivity, though service quality and affordability remain concerns.[65] The deployment of 25,000 Prime Minister's Wi-Fi Access Network Interface (PM-WANI) hotspots in underserved areas has created shared digital infrastructure, enabling communities to access online services for livelihoods even without individual connectivity, with usage patterns showing strong demand for educational content and government services.[66] The availability of government applications in 22 languages has improved accessibility, though the quality of translations and cultural adaptation of interfaces remains inconsistent.[67]

Women's economic empowerment through technology is yielding promising outcomes. Around 34 lakh women entrepreneurs are using dedicated e-commerce platforms to build businesses that would have been impossible in traditional patriarchal market structures.[68] Financial inclusion tools like Mahila Money and the SHEROES platform serve 2.3 crore women with tailored financial products, skill development resources, and market linkages. Yet, entrenched social norms and household dynamics continue to limit women's autonomous use of technology in many regions.[69] Adoption of safety technologies has also been significant, with 87 lakh downloads of women's safety apps featuring SOS buttons and location sharing. However, their real-world effectiveness remains contingent on broader ecosystem factors – particularly police responsiveness and community support systems.[70]

Disability-inclusive technology has made important strides, with 12 lakh persons with disabilities receiving smart assistive devices that enable digital participation, though the cost of advanced assistive technologies remains prohibitive for most.[71] The achievement of Web Content Accessibility Guidelines 2.1 (WCAG 2.1) accessibility standards by 78 percent of government applications represents progress, but private sector platforms often remain inaccessible, limiting employment and economic opportunities.[72] Remote work opportunities have been transformative for the disability community, with 4.5 lakh disabled individuals finding digital employment that bypasses physical accessibility barriers, though discrimination and lack of reasonable accommodations persist in many digital workplaces.[73]

10.9. Emerging Livelihood Technologies: Promise and Peril

The deployment of artificial intelligence across India's livelihood ecosystem is accelerating rapidly, with applications ranging from agricultural advisory to manufacturing quality control fundamentally changing how work is performed and value is created. The Krishi-AI platform now serves 45 lakh farmers with personalised recommendations based on soil data, weather patterns, and market conditions, improving yields by an average of 22 percent while reducing input costs.[74] Predictive analytics in supply chain management has reduced wastage by 23 percent, particularly in perishable goods sectors, generating economic value of ₹67,000 crore annually.[75] Computer vision systems deployed in 230 Agricultural Produce Market Committees (APMCs) have automated quality grading, reducing corruption and ensuring fair prices for farmers while improving market efficiency.[76]

Blockchain technology is moving beyond pilots to scaled implementation, with 34 crore digital identity credentials issued for informal workers, creating portable reputation systems that could fundamentally alter labour markets.[77] Smart contracts worth ₹12,000 crore have been executed in agricultural commodity trading, eliminating intermediaries and reducing transaction costs by 18 percent.[78] Decentralised finance (DeFi) pilots reaching 23 lakh unbanked users suggest the potential for parallel financial systems that operate without traditional intermediaries, though regulatory uncertainty and technological complexity limit wider adoption.[79]

However, these emerging technologies also raise critical concerns about their impact on employment, inequality, and social cohesion.[80] The potential for technological unemployment as AI and automation replace human workers in sectors like manufacturing and services could exacerbate existing inequalities unless accompanied by massive reskilling programs and social protection reforms. The phenomenal energy used by blockchain networks and AI systems raises environmental sustainability questions, particularly given India's climate commitments. The concentration of technological capabilities in a few large corporations risks creating new forms of digital monopolies that could stifle innovation and extract economic rents from smaller players.

10.10. Barriers and Risks: The Unfinished Agenda

Despite remarkable progress in technology for livelihoods, significant barriers to inclusive digital transformation for livelihoods (Table 10.5) persist, with infrastructure constraints remaining the most fundamental challenge. The digital divide manifests starkly in the 31 percent of rural areas that still lack reliable 4G coverage, creating islands of digital exclusion that risk being left further behind as urban areas move toward 5G.[81] Smartphone penetration at 54 percent in rural areas means nearly half the rural population lacks the basic device needed for meaningful digital participation, with affordability being the primary barrier despite various financing schemes.[82] Power reliability continues to plague digital adoption, with 18 percent of MSMEs citing electricity availability as a major barrier to digitalisation, particularly in states like Bihar and Uttar Pradesh where power cuts remain frequent.[83]

Human capital challenges remain a critical bottleneck in India’s digital transformation. Only 38 percent of the rural population possess basic digital literacy skills required to navigate online platforms and services.[84] Language barriers further constrain access, as 62 percent of users prefer regional language interfaces, yet most advanced digital services continue to be offered primarily in English or Hindi.[85] A trust deficit in digital systems persists, with 44 percent citing cybersecurity concerns as a barrier to adoption, particularly for financial services where fear of fraud and data misuse runs deep.[86] The elderly population faces the steepest hurdles, with only 12 percent of those over 60 comfortable with digital interfaces – placing them at risk of exclusion from an expanding range of digitised government services and financial systems.

Table 10.5: Barrier For Livelihoods Dashboard (2025)

Barrier	2025 Reading	Implication
Rural 4G coverage gap	~31% areas	Islands of exclusion
Rural smartphone penetration	~54%	Device affordability constraint
Power reliability for MSMEs	18% cite as major issue	Digitization stalls in weak-grid states
Basic digital literacy (rural)	~38%	Limits uptake of advanced services
Language preference (regional)	62%	Need deep vernacularisation
Cyber/trust concerns	44%	Drag on fintech adoption
Algorithmic exclusion	~12% auto-rejections	Thin files penalised
Gig income volatility	67% >30% MoM	Credit and savings instability
Digital wealth concentration	Top 10% capture 45% of gains	Inequality amplification

Source: Compiled by author from several sources through triangulated research

Socioeconomic risks from digitalisation are becoming increasingly apparent, with algorithmic exclusion emerging as a new form of discrimination where 12 percent of loan applications are rejected by AI systems without human review, often penalising those with thin digital footprints.[87] Platform precarity affects millions, with 67 percent of gig workers reporting income volatility that makes financial planning impossible and excludes them from formal credit markets.[88] Perhaps most concerning is the wealth concentration effect, with the top 10 percent capturing 45 percent of digital economy gains while the bottom 40 percent receives only 12 percent, suggesting that without intervention, digitalisation could worsen rather than improve inequality.[89]

10.11. Technology for Livelihoods – Policy Pathways for 2025-30

The next phase of India's digital transformation for livelihoods requires a comprehensive policy framework that addresses infrastructure gaps, regulatory challenges, and inclusion imperatives while fostering innovation and economic growth. Universal 5G coverage with prioritisation of rural deployment must be achieved through innovative public-private partnership models that share costs and risks while ensuring affordable access. Device financing schemes targeting the bottom 40 percent of income distribution could include subsidised smartphones bundled with data plans and digital literacy training, similar to successful models in Kenya and Bangladesh. Renewable energy integration for digital infrastructure becomes critical both for reliability in areas with poor grid connectivity and for meeting climate commitments, with solar-powered base stations and data centres becoming standard.

Regulatory evolution must keep pace with rapid technological change. Comprehensive data protection legislation is essential – not only to safeguard privacy rights but also to give users meaningful control over their data while enabling innovation. At the same time, an AI ethics framework with algorithmic accountability mechanisms must ensure that automated decision-making systems for livelihood related matters are transparent, fair, and contestable, particularly in high-stakes areas like credit, employment, and government services. Platform worker rights need codification through new labour laws that recognise the unique nature of gig work while providing basic protections including minimum earnings, social security, and grievance redressal mechanisms. MSME-specific cybersecurity standards and support systems are essential to protect small businesses

from increasingly sophisticated cyber threats that could destroy their digital transformation gains.

Inclusive design must shift from being optional to mandatory, with all government platforms required to support regional languages, incorporate senior citizen-friendly interfaces, and comply with international accessibility standards for persons with disabilities. In the financial sector, gender-responsive fintech – tailored to women's distinct financial needs, risk profiles, and social constraints – hold the potential to unlock vast economic opportunities while advancing gender equality. Public-private partnerships should focus on co-investment in rural digital infrastructure, collaborative skill development programs that link training to employment, shared digital commons that reduce duplication, and innovation sandboxes that allow controlled experimentation with emerging technologies.

10.12. Conclusion: Toward Inclusive Livelihoods Through Digital Prosperity

The evidence from India's 2023–25 digital transformation resists simple classification as either success or failure. Instead, it reveals a nuanced story of extraordinary achievements coexisting with persistent challenges – a duality that will shape the nation's development trajectory for years to come.[90] While technology adoption has accelerated beyond most projections, with digital tools reaching previously unimaginable scales and speeds, the translation of this adoption into equitable income growth and improved livelihoods remains highly uneven across sectors, geographies, and demographic groups. The transformation has been most successful where digital tools have complemented rather than replaced existing capabilities, where local innovation has adapted global technologies to Indian contexts, and where government platforms have created foundational infrastructure upon which private innovation can build.

The resilience implications of digital livelihoods present a paradox: while digital tools have enhanced resilience to certain shocks – as demonstrated during the COVID-19 pandemic when digital platforms enabled continuity of work, education, and commerce – they have simultaneously introduced new vulnerabilities.[91] Cyber risks, platform dependencies, and algorithmic biases create novel forms of precarity that traditional policy frameworks are ill-equipped to address. The concentration of digital infrastructure and capabilities raises systemic risk concerns, where technical failures or cyberattacks could cascade through interconnected systems with devastating economic consequences for livelihoods, especially of low income and marginalised populations.

Looking forward to the 2025–30 period, realising technology's potential as a genuine livelihood multiplier rather than a divider will require deliberate, sustained, and coordinated action across government, private sector, and civil society.[92] The path to inclusive digital prosperity requires more than technological breakthroughs; it calls for but institutional innovation that builds new forms of social protection, regulatory frameworks, and governance mechanisms designed for the realities of the digital age. Success will ultimately be measured not by adoption metrics or gross domestic product (GDP) growth but by whether India's digital transformation enables every citizen – regardless of geography, gender, caste, or economic status – to pursue sustainable livelihoods and live a life of dignity, opportunity, and purpose in an increasingly digital world. The choices made in the next five years will determine whether India's digital transformation becomes a model for inclusive (livelihood) development that other nations seek to emulate or a cautionary tale of how technology without equity can deepen rather than heal social divides.

Notes and References

[1] Digital India began with 1.0 (2015–2019), when India built its basic digital foundations — universal identity through Aadhaar, broadband connectivity, and online access to key services, ensuring citizens could be digitally identified and reached. 2.0 (2019–2023) took the next step by connecting these foundations into interoperable platforms like UPI, DBT, GSTN, CoWIN, and ONDC, enabling seamless payments, governance, and service delivery at scale through the "India Stack." 3.0 (2024 onward) marks the intelligent phase — adding artificial intelligence, secure data-sharing, and global interoperability through initiatives like the India AI Mission, data protection, and trusted digital infrastructure — making India's digital ecosystem not just inclusive and scalable, but also smart, safe, and globally adaptable.

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[5] India's digital transformation in governance and livelihoods extends across multiple flagship programmes. The Digital India Land Records Modernization Programme (DILRMP 2.0) is digitizing and integrating land records, cadastral maps, and registration systems to create a single, tamper-proof source of land ownership that links seamlessly with banks and local bodies. The electronic National Agriculture Market (e-NAM 3.0) connects over a thousand wholesale markets into one online platform, enabling farmers to sell produce nationwide with transparent pricing and digital payments. The One Nation One Ration Card (ONORC) ensures that any beneficiary can access subsidized food grains anywhere in India through Aadhaar authentication, making food security portable for migrant families. The JAM 2.0 trinity—Jan Dhan accounts, Aadhaar, and Mobile—together with Direct Benefit Transfers (DBT) has revolutionized welfare delivery by sending subsidies and entitlements directly into verified bank accounts, reducing leakages and delays. AGRISTACK represents the next frontier: a unified digital database of farmers and farmlands that supports AI-driven advisories, credit access, and precision farming. The digital transformation of MGNREGA enables transparent wage payments, real-time attendance, and geotagged assets under the rural employment scheme, improving accountability. Finally, Skill India Digital provides an integrated online ecosystem for training, certification, and job matching, equipping youth with digital and vocational skills for a technology-driven economy. Together, these initiatives illustrate how India is layering intelligence, inclusion, and trust atop its digital public infrastructure to deliver real-world impact at population scale.

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[32] https://dashboard.msme.gov.in/

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[59] Traditional microfinance institutions (MFIs) in India operate through extensive physical networks with strong community linkages and field-based engagement. They serve nearly 8.3 crore unique borrowers across 14 crore active loan accounts, relying on field officers, group meetings, and localized trust-based credit models. This approach ensures high repayment discipline, deep social penetration, and a direct understanding of borrower realities. The emphasis is on personal contact, cash collections, and community accountability — what is often described as having "feet on the ground." In contrast, app-based microfinance represents a digitally driven model that minimizes physical intermediation. It leverages AI, alternative data, and mobile interfaces to onboard, assess, and disburse credit remotely. This model can scale rapidly and reduce transaction costs but often lacks the social capital and real-time human intelligence that traditional MFIs possess. While it broadens access for tech-literate segments, especially in urban and peri-urban areas, it may not yet substitute the trust networks, grievance redressal mechanisms, and adaptive credit recovery methods that define the legacy MFI model. In essence, traditional microfinance builds inclusion through human networks, while app-based microfinance scales inclusion through technology. The future lies in hybrid models that combine both — retaining the human touch where needed while using data and digital tools to enhance efficiency, risk assessment, and customer experience.

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From Compliance to Commitment: Evolution of CSR in India

11

Chhitiz Kumar, Poorva Rai

Corporate Social Responsibility (CSR) in India has undergone a significant transformation over the past decade – shifting from a compliance-driven obligation to a strategic lever for socio-economic development. Rooted in global discourses on corporate accountability, stakeholder theory, and sustainable development, India's CSR framework gained legal institutionalisation through the Companies Act, 2013, which mandates eligible firms to allocate at least 2 percent of their average net profits toward structured social initiatives. While the cumulative CSR spend has grown substantially – from ₹10,065 crore in the Financial Year (FY) 2014–15 to ₹34,909 crore in FY 2023–24 – investments remain concentrated in few of the sectors and regions, highlighting spatial and thematic disparities. Procedural delays, favouring short-term projects, and narrow official interpretations of legal provisions often limit the impact of CSR initiatives, particularly across underserved areas. Livelihood enhancement programmes offer profound potential for long-term empowerment, economic self-reliance, and social stability, yet remain underrepresented relative to health and education. The chapter attempts to build a narrative of evolution of CSR in India – tracing its legal genesis, sectoral and geographic trends, and analysing its developmental spends. It explores the factors shaping corporate choices of sector and geography, and interrogates why livelihood programmes remain peripheral within the larger CSR portfolios. Aligning CSR with national priorities and illustrating learnings from case studies like Sakhi Project and Self-help Group (SHG) movement, the chapter seconds systematic corporate investments for livelihoods transformation that directly contribute to poverty reduction, employment generation, and inclusive growth.

11.1. Introduction

For much of recorded history, safeguarding the welfare of citizens was regarded as the exclusive remit of the state. Governments commanded the authority, institutions, and resources necessary to provide social protection, while private actors remained largely confined to the pursuit of commerce. However, the rise of industrial capitalism in the 18th and 19th centuries disrupted this neat division. Corporations amassed resources surpassing those of many governments and their decisions began to shape employment, trade, and even geopolitics which were traditionally perceived as domains

of sovereign. Capitalist expansion during this period was inherently extractive, extending its reach through colonialism that restructured local economies to serve global markets. As Karl Marx critiqued, the global spread of capitalism imposed new relations of production on pre-capitalist societies, expropriating labour and resources while creating enduring patterns of dependencies and inequalities. The unrestrained industrial growth of this period led to not only generated concentrated wealth for a few but also unleashed waves of environmental degradation, widening inequality, labour exploitation, and rising social tensions that states and societies could no longer ignore.

It was in response to these demand that, by the mid-20th century, welfare capitalism emerged in the United States and Europe – the very hubs of colonialism and capitalism. This development marked a transition towards more structured corporate social initiatives, reflecting the growing recognition that pursuit of profit alone was an unsustainable model for long-term social and economic stability. Corporations were compelled to rethink their role in society under pressure from labour movements, intellectual debates on social responsibility, and the ideological challenges posed by the rise of communism. Beyond these external pushes, there also emerged a principal awareness that business success should not come at the cost of human well-being. In India, this awareness resonated with Mahatma Gandhi's vision of trusteeship, which posited that wealth and resources held by individuals or corporations were ultimately held in trust for the broader welfare of society. Gandhi's ethical principle offered an early normative foundation for what would later be conceptualized as corporate responsibility. Decades later, Edward Freeman (1984) provided the intellectual framework for contemporary CSR by formalising the Stakeholder Theory. The theory highlights that businesses must consider the interests of employees, consumers, communities, and the environment, not just shareholders. The evolving understanding of corporate responsibility was reinforced by the United Nations Brundtland Commission's call for sustainable development, which underscored the moral and environmental obligations of businesses toward society. In India, the trajectory of corporate responsibility took on renewed urgency in the wake of the Liberalisation, Privatisation, and Globalisation (LPG) reforms of 1991. These reforms catalysed the expansion of private enterprise, but they also sharpened expectations that corporations should contribute to societal development and not merely focus on profits.

The turn of the 21st century witnessed a decisive evolution in corporate responsibility. John Elkington's Triple Bottom Line concept popularised the idea that corporate performance should be measured in terms of profit, people, and planet. Environmental, Social, and Governance (ESG) criteria emerged as a key tool for investors and regulators to assess corporate responsibility. International legal instruments such as the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises, the UN Guiding Principles on Business and Human Rights (UNGPs), and the European Union's Non-financial Reporting Directive institutionalised CSR practices. These principles built a normative framework for CSR based upon three pillars:

i) the state's duty to protect human rights,
ii) the corporate responsibility to respect human rights, and
iii) access to effective remedy for victims of business-related abuses

The framework, also known as Protect-Respect-Remedy established global expectations for both governments and businesses, emphasising that corporate accountability goes beyond voluntary philanthropy and must embed human well-being considerations into business operations. India's CSR trajectory mirrors this global arc, and in some aspects, it has even raised the bar. India became one of the first countries to mandate CSR expenditure through the Companies Act, 2013, which came into effect in April 2014. This legal requirement marked a paradigm shift from voluntary philanthropy to mandatory, accountable social investment, embedding corporate responsibility into the core of business strategy. A decade since its implementation, it's interesting to observe how the Act has unfolded to reflect its original intent.

11.2. A Decade of Directives, Deeds, and Dilemmas

11.2.1. Directives

The landmark Companies Act, 2013, through Section 135, introduced a mandatory CSR regime requiring eligible firms to spend at least 2 percent of their average net profits on activities advancing sustainable development and social welfare. The provision applies to companies with a net worth exceeding ₹5 billion, turnover above ₹10 billion, or net profits over ₹50 million, obligating them to allocate this amount based on the average profits of the preceding three financial years. CSR in India, however, did not begin with this mandate – many businesses already had robust initiatives in place, and their early efforts provided models for those starting anew.

The CSR mandate introduced a structured framework by institutionalising CSR committees, policies, and reporting mechanisms. Schedule VII specified permissible activities including education, healthcare, skill development, food and nutrition, rural development, environmental sustainability, and poverty alleviation, among others. In this way, corporate philanthropy began evolving into institutionalised social investment, ensuring that businesses play a formal role in development. The COVID-19 pandemic further marked a reckoning moment. In 2020, the regulatory framework was expanded to cover relief initiatives such as support for healthcare infrastructure and contributions to the Prime Minister's Citizen Assistance and Relief in Emergency Situations (PM CARES) Fund, demonstrating CSR's ability to respond rapidly to national crises. This reinforced its role not just as a compliance requirement, but as an instrument of resilience. In July 2025, new reforms nudged the sector further towards digital transformation, mandating more detailed reporting through updated e-forms. The goal is to drive data-driven governance and ease regulatory processes through digital compliance. These amendments promise transparency and efficiency, nevertheless, the effectiveness of these changes in reducing the compliance burden is yet to be ascertained.

11.2.2. Deeds

In its early years, CSR in India was widely regarded as a compliance exercise – a legal box to tick rather than a business imperative. It functioned as an isolated activity, distinct from core operations, often reduced to cheque-writing or sporadic funding of projects. Over the past decade, however, perceptions have shifted. Companies have started to perceive it as an opportunity to align business objectives with social impact. CSR is gradually moving to the core of corporate strategies, weaving itself into the business operations. Presently, even smaller businesses across regional markets now embrace CSR, not merely to comply with laws but to strengthen community ties, foster goodwill, and actively contribute to local development. During contemporary corporate practice, companies seek to project an image of social consciousness and environmental responsibility as much as possible. For example, marketing campaigns frequently convey socially desirable messages, such as women's empowerment, inclusivity or environmental sustainability. Empirical observations suggest that such messages unfold as an effective strategy of marketing. While advertisements are typically perceived as intrusive, those framed around social or environmental narratives, tend to elicit greater attention and engagement from audiences.

In FY 2014–15, total CSR spending amounted to approximately ₹10,065 crore. By FY 2023–24, this figure had risen to ₹34,909 crore, reflecting a growth of approximately 247 percent. This upward trajectory underscores a significant enhancement in corporate commitment to social and environmental initiatives, aligning with the mandates introduced under the Companies Act, 2013. What started as a small intervention is now scaling up rapidly and shows that with rising corporate profitability, CSR can emerge as a reliable source of filling niche gaps.

However, concentration of spends in a handful of sectors highlight the limitations of corporate sector in visualising the broader

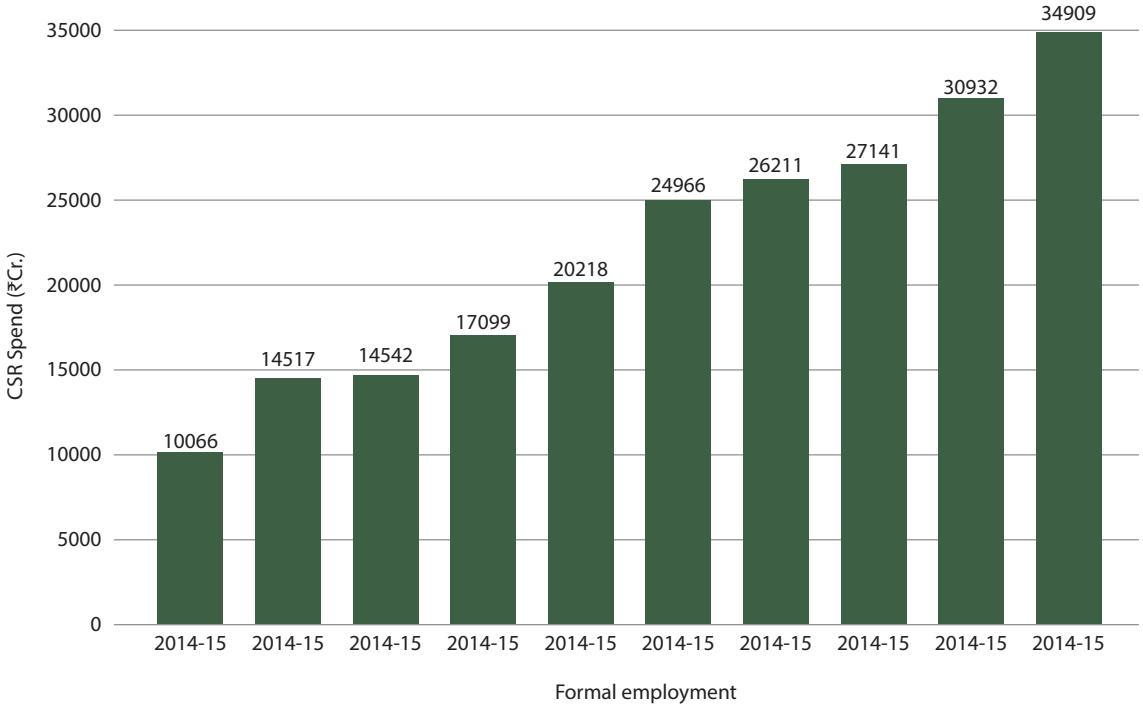

Figure 11.1: CSR Spending Year-on-Year

Source: National CSR Portal, Ministry of Corporate Affairs

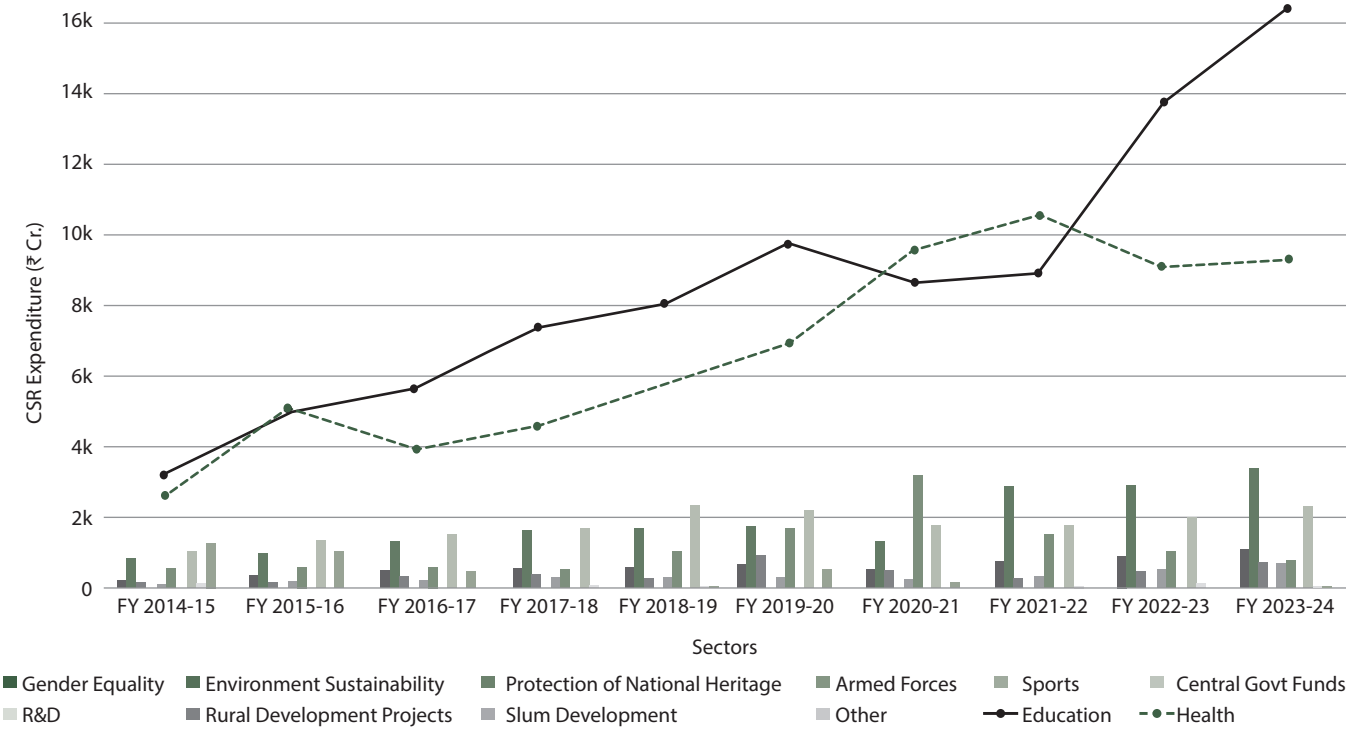

Figure 11.2: Development Sector CSR: All Sectors, Education and Health

Source: National CSR Portal, Ministry of Corporate Affairs

developmental canvas that has been offered. Together, education and health absorbed more than 55 percent of CSR expenditure in FY 2023–24. Education alone accounted for nearly 35 percent, channelling funds into school infrastructure, scholarships, and digital literacy initiatives. Healthcare and water, sanitation, and hygiene (WASH-related) programmes received around 20 percent, covering hospital facilities, vaccination drives, and community health awareness campaigns. The pandemic briefly altered this order, as healthcare overtook education in national priority, but the balance quickly shifted back once the immediate crisis abated. Beyond these two sectors, environmental and climate action projects have emerged as a rapidly growing domain, with CSR contributions directed towards afforestation, renewable energy, and waste management. Between FY 2018–19 and FY 2022–23, spending in this space surged by 71 percent, signalling an evolution in corporate consciousness that now links environmental stewardship with broader social responsibility.

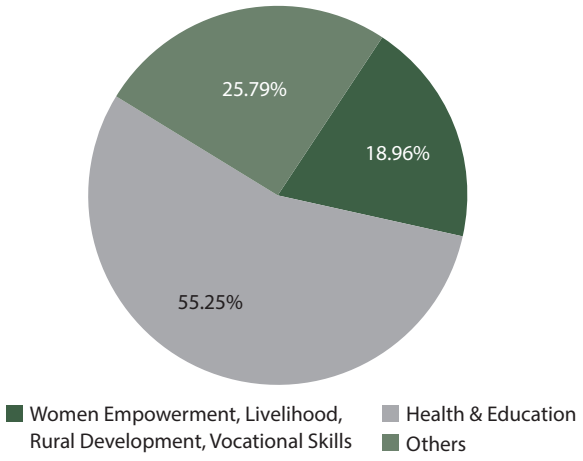

Figure 11.3: CSR Spend FY 2023 – 24 (%)

Source: National CSR Portal, Ministry of Corporate Affairs

Given the surge in investments, the conversations are no longer about whether corporates should invest or not, rather how to channel these investments for meaningful grassroots impact. Companies are now exceeding their statutory obligations by substantial margins. For example, in FY 2024–25, IndiGo (InterGlobe Aviation Limited) spent ₹13.96 crore on CSR activities, far surpassing the legal requirement of roughly ₹1.1 crore. Giants such as Tata Steels, Reliance Industries, ONGC and others also spent more on CSR activities than the statutory minimum. This reflects a broader trend that businesses no longer see themselves

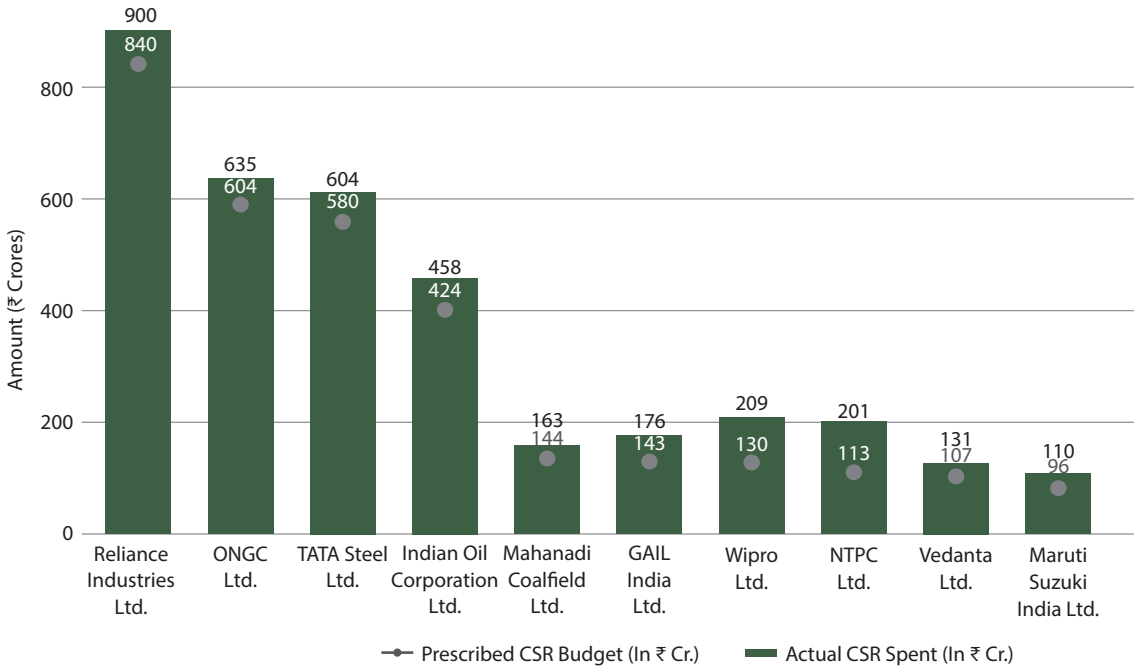

Figure 11.4: CSR Spent for Companies

Source: CSRBOX Research Desk

confined to purely commercial pursuits but actively seek opportunities to contribute to overall development. However, they often face a plethora of policy and implementation challenges that have resulted into skewed outcomes and require a review, a few among them are given in the below section.

11.2.3. Dilemmas

The letter and spirit of a particular law often go hand in hand, but sometimes, this is not the case with the CSR regulations. As authorities placed increasing emphasis on compliance, corporates began to lose sight of the essence of law. Adhering to the letter of the law is comparatively easier, focusing on measurable outputs such as expenditure incurred, number of projects undertaken, or the scale of beneficiaries reached. What is far more challenging is upholding the spirit of the law, which seeks deeper, long-term impact – often qualitative in nature, not easily quantifiable, and at times not immediately appealing. For instance, a company investing crores to build a super-specialty hospital in a metropolitan city is like erecting a lighthouse: tall, visible, and impressive. Yet, what the nation often needs more are lanterns – small, steady lights illuminating the neglected corners where access itself is a struggle. The pressing question, then, is whether the current legal framework truly facilitates such meaningful, ground-level impact. The following issues highlight potential bottlenecks that demand closer scrutiny:

1. **Procedural delays:** The CSR framework empowers company boards to plan, approve, and monitor CSR projects; in practice delays in organising meeting or approving the proposal undermines the project. The Report of the Comptroller and Auditor General of India - General Purpose Financial Reports of Central Public Sector Enterprises for the period ended March 2022, implicitly touched upon the matter that procedural delays in several Public Sector Undertakings (PSUs) resulted in unutilised CSR funds at the end of the financial year. The said report highlights that, out of 63 Central Public Sector Enterprises (CPSEs), 26 were having unspent amount of ₹259.69 crore at the end of FY 2021–22. This situation often led to the cancellation of implementation partnerships that had been selected through open calls.
   Such situation leads to companies often rushing to complete CSR projects within shortened timelines due to delayed board approvals and budget allocations or accumulation of unspent amount in a specified amount. This time crunch leads to preference for quick-fix infrastructure projects over sustainable community development initiatives. Also, unspent CSR funds due to delayed approvals hit five-year high of ₹1,475 crore in FY 2023.
2. **Prioritising annual project:** As the law requires companies to invest 2 percent of its annual profit, the board members prefer projects that can be completed within one year. This approach ensures compliance with the law and allows for easier legal reporting.
3. **Interpretation of 'local area preference':** The law encourages companies to give preference to local areas around their operations. To avoid any legal complexity, the company often avoids investing in vulnerable areas which lie outside its area of operation. This clause could be the plausible reason for skewed CSR investment in a handful of states, most of the times, prosperous one due to the presence of industries. In the last financial year (FY 2023-24), the top 5 states, viz., Maharashtra, Gujarat, Karnataka, Tamil Nadu, and Delhi (NCT) attracted most CSR investments roughly 43 percent, these also happen to be the states already prosperous compared to other states receiving low CSR investment. In contrast, low-income states such as Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Meghalaya, Nagaland, Tripura, and Uttar Pradesh – categorised per the Headcount Ratio of people Below Poverty Line (BPL) collectively garnered 11 percent of the total funds, and show meagre jump from 7 percent a decade ago since CSR funds allocations were statutorily implemented. The North Eastern states collectively receive less than 1 percent of the CSR funds. Further, despite the government advocating CSR investment in Aspirational Districts, only about 2.15

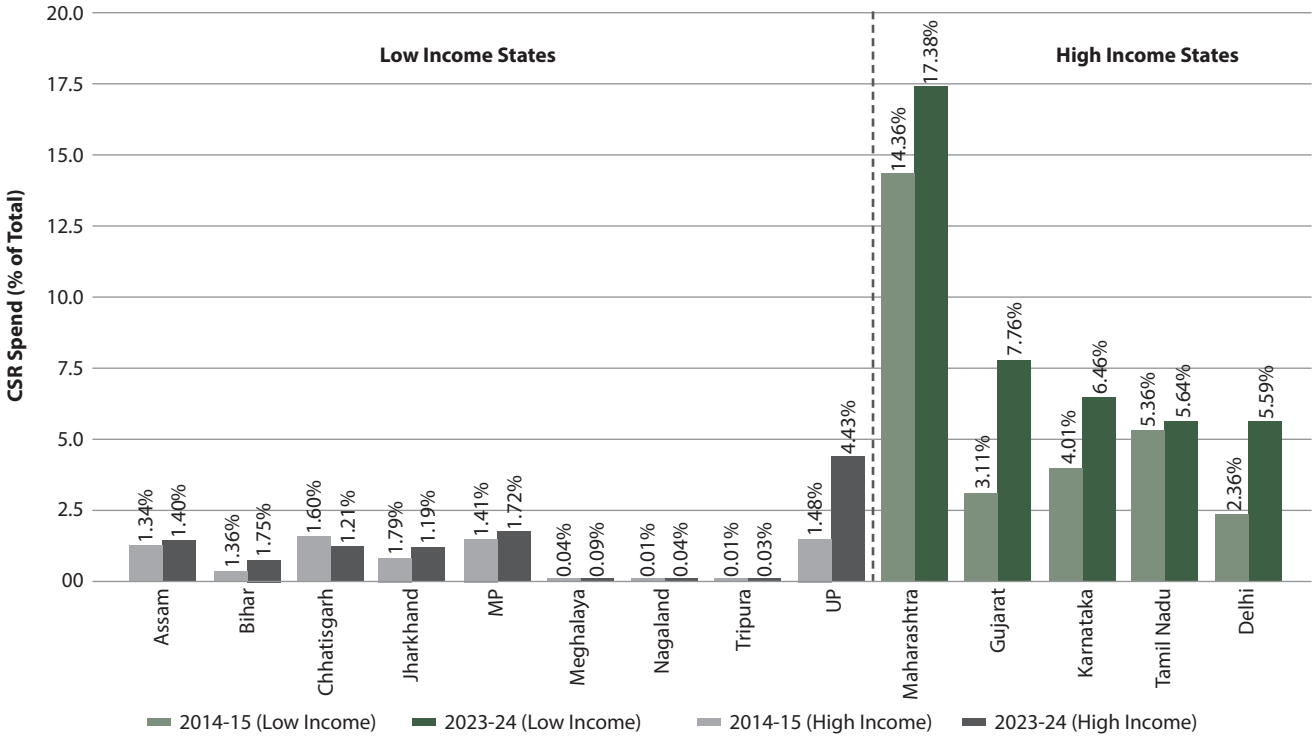

Figure 11.5: CSR Spend by State (%): 2014–15 vs. 2023–24

Source: Ministry of Corporate Affairs

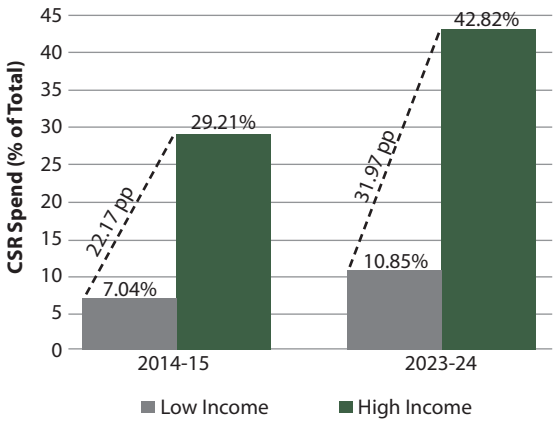

Figure 11.6: CSR Spend (% of Total): Low vs. High Income by Year

Source: Ministry of Corporate Affairs

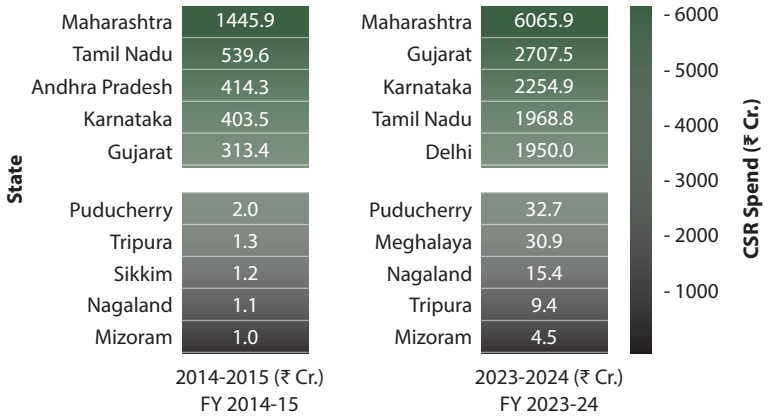

Figure 11.7: CSR Spend for Top 5 and Bottom 5 Sates: 2014–15 vs. 2023–24

Source: Ministry of Corporate Affairs

percent of the total CSR during 2014–22 has been invested in these districts. Spatial disparities are not limited to inter-state comparisons. Within states, prosperous districts and urban zones often receive a disproportionate share, while districts under greatest livelihood stress are overlooked.

4. **Weak monitoring and post-project sustainability:** A significant proportion of CSR initiatives are designed primarily to satisfy the statutory spending requirement (2 percent of average net profits) rather than achieving sustainable social outcomes. The focus on expenditure over effectiveness leads to superficial interventions sometimes. The case of Central Coalfields Limited (CCL) illustrates how inadequate monitoring can severely undermine the intended impact

of CSR initiatives. Despite signing a Memorandum of Understanding (MoU) with the Government of Jharkhand in June 2015 to promote sports – including the establishment of 15 sports academies, a Sports University, and selection of at least 700 students – the progress remained significantly delayed. By March 2022, only 10 sports academies were operational, no Sports University had been established, and student induction fell far below targets.

5. **Interpretation of schedule VII:** Schedule VII of the Companies Act provides a list of permissible CSR activities, and companies are expected to focus their investments within those activities. Introduced in 2014, the Schedule requires an evolving and liberal interpretation in line with government policy. However, to avoid legal complexities, many companies restrict their CSR investments to activities explicitly mentioned in the Schedule. For example, issues concerning transgender persons – highlighted in the public discourse following the 2014 National Legal Services Authority (NALSA) judgment and the Transgender Persons (Protection of Rights) Act, 2019 – are not explicitly listed. While such initiatives could reasonably be categorised under "promoting gender equality," several Non-governmental Organisations (NGOs) and Civil Society Organisations (CSOs) reported that boards often denied funding, citing the absence of explicit mention. In response, the National Human Rights Commission (NHRC) recommended that the relevant ministry explicitly includes transgender issues in Schedule VII; however, advocacy for a liberal interpretation of the Schedule still continues.

The journey of first decade of CSR in India illustrates both achievements and structural limitations. To realise the full developmental impact of CSR, interventions must move beyond compliance-driven, short-term projects toward sustained, programmatic investments that integrate socio-economic empowerment with business strategy, for which policy reform to facilitate the mould remain the indispensable part.

11.3. CSR Investment in Livelihoods: Lessons From Missed Opportunities

Surprisingly, livelihoods enhancements programmes aimed at income generation, remain one of the most undervalued themes within CSR portfolios. Although the overall pool of companies undertaking CSR and total expenditure has increased, projects directly aimed at livelihood generation continue to receive limited attention within corporate portfolios. Part of the challenge lies in categorisation: livelihood-focused initiatives are often subsumed under broader themes such as education, skills development, or rural development, making it difficult to consolidate funding and establish livelihoods as an independent priority. As a result, visibility is compromised and opportunities to create sustained, large-scale programmes for economic empowerment are diluted.

Despite relatively smaller budgets, livelihoods sector has recorded the steepest increase in allocations over time. Between FY 2014–15 and FY 2023–24, spending on livelihood-enhancement projects rose by more than 742 percent – from ₹280.17 crores to ₹2,360.09 crores – marking the sharpest growth among all core sectors.

Climate change and the rise of data, Artificial Intelligence (AI), and automation are creating new challenges and risks for people's livelihoods. Investing in livelihoods is not just an ethical choice but also a smart one, as it helps build self-reliant communities and ensures sustainable business growth. This acceleration points to a gradual recognition of the importance of livelihood security, even though health and education continue to hold the lion's share of funding and remain the most entrenched priorities since the inception of India's CSR rules a decade ago. CSR investments in livelihoods has the potential to resolve complex socio-economic complexities, managing conflicts and rebuilding trust that generate mutual benefits for society and business, some of which are explained in detail below.

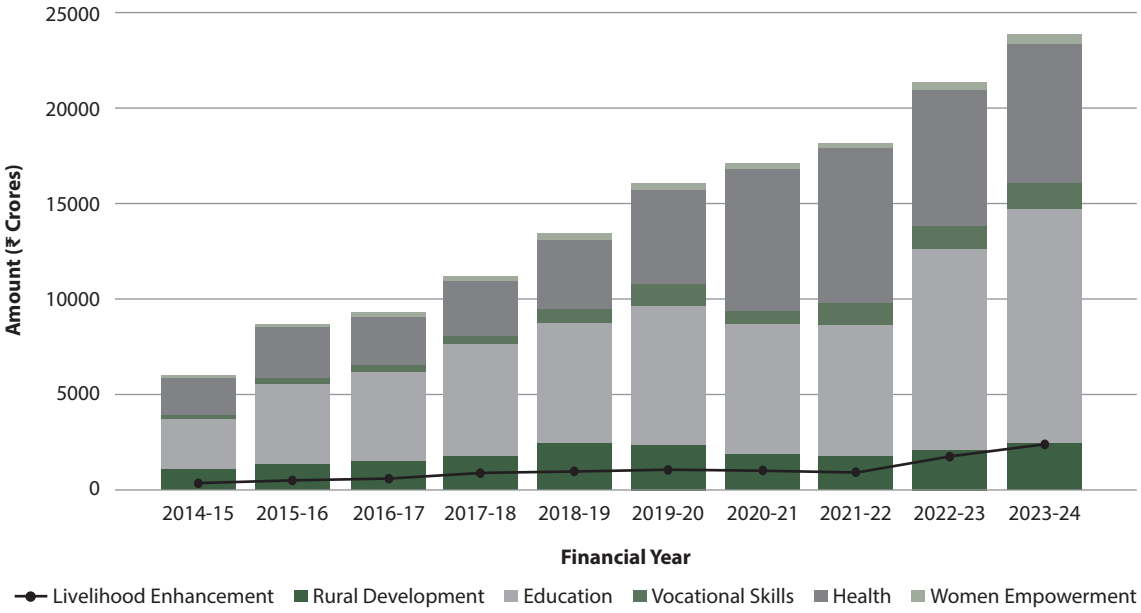

Figure 11.8: CSR Spending Trends by Sector Over Years

Source: Ministry of Corporate Affairs

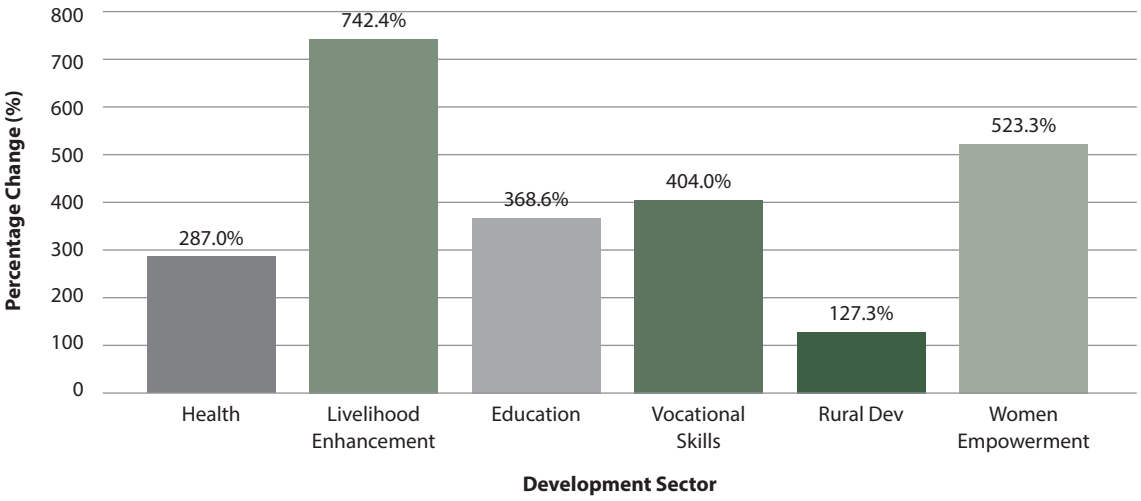

Figure 11.9: Percentage Changes in CSR Spend by Sector (2014–15 to 2023–24)

Source: Ministry of Corporate Affairs

11.4. Livelihoods and Corporate Investment – The Social Dynamics

Livelihoods risks can create serious social and economic challenges for companies, including reputational damage. Research indicates that community resistance to large industrial projects is seldom rooted in opposition to development itself. More often, it stems from concerns that outside investments may divert local resources, disrupt existing income sources, and fail to deliver on promised employment opportunities. This has been seen in several cases involving India's major private companies, known both for business

success and philanthropy. Similar experiences from projects like the POSCO plant in Odisha and the Narmada dam show that insecurity about livelihoods, rather than opposition to development, often causes community resistance. Including livelihood support programmes in CSR and Social Impact Assessments (SIA) can help balance business goals with community needs, strengthening trust and long-term acceptance. SIAs – particularly when conducted in collaboration with civil society organisations and through participatory methods – can play a vital role in identifying potential risks and shaping fair, inclusive rehabilitation strategies. Using CSR for skill mapping, followed by training and capacity building and finally providing employment for local residents can create a trained workforce, build trust, and ensure that employment opportunities are accessible. This way, both companies and local people stand to gain.

11.5. Economic Returns of Livelihoods Focused CSR

Investing in livelihoods through CSR is not only a social imperative but also a sound economic strategy. Livelihood programmes bolster community resilience, reduce inequality, and enhance the robustness of local economic ecosystems. Applied research indicates that targeted investments in income-generating activities create strong multiplier effects – with rising household incomes stimulating local consumption, nurturing entrepreneurship, and generating additional employment opportunities. Livelihood-focused CSR initiatives also play a critical role in addressing systemic vulnerabilities. In India, a significant proportion of the population depends on agriculture, informal labour, and small-scale enterprises. Disruptions in these sectors – whether due to climate variability or technological displacement – can intensify poverty and depress consumption, thereby triggering adverse feedback loops that affect the wider economy. Corporations that invest strategically in livelihoods effectively broaden their future consumer base while stabilising the socio-economic ecosystems that are essential to their operations.

Furthermore, livelihood investment serves as important tool for risk mitigation. Companies face operational, reputational, and regulatory risks when surrounding communities experience unemployment or environmental degradation. By fostering sustainable employment, businesses can reduce instances of conflict, alleviate migration pressures, and mitigate supply chain vulnerabilities.

11.6. Re-engineering CSR – From Short Term Relief to Long Term Sustained Livelihoods

CSR in India has evolved from ad hoc philanthropy into a strategic instrument for social impact. Yet, despite their potential to drive systemic change, livelihood enhancement programmes continue to attract a disproportionately small share of corporate investment. This is paradoxical, since such initiatives hold the potential for lasting transformation – fostering economic self-reliance, strengthening community resilience, and generating benefits that extend far beyond the short-term outcomes of conventional CSR projects.

The underinvestment in livelihood-focused CSR is partly structural. Corporates often favour projects with immediate and visible outcomes – school infrastructure, health camps, or disaster relief – that show up in quantitative aspects. Livelihood programmes, in contrast, are inherently long-term and complex. They require sustained engagement, specialised expertise, and rigorous monitoring and handholding to achieve measurable outcomes. The delayed visibility of results contribute to a perception of higher risk, discouraging many companies from scaling these initiatives despite their transformative potential.

Well-designed livelihood programmes, however, illustrate the profound impact of strategic CSR. One of the most successful models in India has been the SHG movement, which shows how long-term engagement and structured support can empower communities while generating measurable social and economic outcomes.

The success of initiatives such as SHGs and the Sakhi project demonstrates that while

Box 11.1. Empowering through Livelihoods: The SHG Example

The SHG movement in India illustrates how livelihood-focused programmes can catalyse transformative social change. Initially centred on women's empowerment rather than direct income generation, SHGs have eventually evolved into one of the most effective grassroots models for sustainable livelihoods. By pooling savings, accessing microcredit, and engaging in small-scale enterprises, women in SHGs not only secure stable income but also gain financial autonomy. This empowerment extends beyond earnings, influencing family decision-making, children's education, health outcomes, and participation in local governance. SHGs demonstrate that livelihoods are not merely a source of income, rather, they are a pathway to dignity, agency, and enduring social impact.

A notable case is the Sakhi Project of Hindustan Zinc. Launched in 2006 under the theme of women empowerment, the project mobilised rural and tribal women in Rajasthan through SHGs. Its objectives were to foster savings, improve financial literacy, and gradually nurture income-generating groups. Over the years, the initiative expanded to cover over 200 villages in Rajasthan and Uttarakhand, organising more than 27,000 women into 2,100+ SHGs and creating over 1,200 micro and nano enterprises. A landmark development in 2021 with the registration of Sakhi Utpadan Samiti as a women-led social enterprise that formalised the entrepreneurial journey, enabling the production of pickles, spices, honey, and textiles. Strategic collaborations with brands such as FabIndia enhanced design capabilities, market access, and commercial sustainability. Today, annual turnovers of these production units exceed ₹40 lakh, while the project continues to challenge social norms: women exercise leadership, financial independence, and active engagement in governance. Recognised nationally, including with the "Leaders for Social Change Award," Sakhi exemplifies long-term, impactful CSR in women empowerment and livelihoods creation.

livelihood programmes demand sustained effort and patience, they deliver enduring benefits. When communities are economically empowered, their purchasing power increases, creating new markets for goods and services. Skill development initiatives cultivate local talent pools that can directly benefit the company, reducing recruitment challenges. Furthermore, CSR programmes that deliver visible, sustainable impact enhance a company's reputation, strengthen stakeholder trust, and contribute to its Environmental, Social, and Governance (ESG) profile, which is increasingly important for investors.

Further, Companies can overcome the perceived barriers by collaborating with NGOs, CSOs, and grassroot organisations that bring expertise and experience in implementing livelihoods projects. Structured pilot programmes with clear, measurable outcomes can demonstrate impact and build confidence before scaling up. Employee engagement in these programmes can further amplify impact, creating a sense of pride and purpose among staff while strengthening the company-community relationship. Finally, investing in livelihoods is both socially responsible and strategically valuable. Such programmes empower communities, build resilient local economies, develop a trained workforce, and enhance corporate reputation. Unlike short-term CSR activities, livelihood initiatives create visible, lasting outcomes. Beneficiaries often become advocates for socially-responsible companies, reinforcing goodwill, fostering trust, and embedding a culture of shared value creation. By focusing on sustainable empowerment rather than temporary relief, companies can align social impact with long-term business success.

11.7. Integrating CSR Into National Priority – The Livelihood Enhancement

11.7.1. Government-Backed CSR Drive

The Government of India recognises the potential of companies contributing towards development process. It now views the corporate

sector as a vital partner in addressing two major challenges – the shortage of skilled manpower and rising unemployment. Reflecting this vision, the Union Budget 2024–25 introduced the Prime Minister's Internship Scheme (PMIS), a pioneering initiative that aims to provide internship opportunities to one crore youth in the top 500 companies over the next five years. Under the scheme, companies are expected to bear the training costs and 10 percent of the internship expenses through their CSR funds. As an initiation to this scheme, the Ministry of Corporate Affairs (MCA) has identified the top 500 companies based on their average CSR expenditure over the past three years. The scheme is designed to bridge the gap between academic learning and industry expectations, equipping young individuals with practical experience and financial support. Notably, for the first time, the Union Budget has positioned CSR as a key instrument for employment-linked development, thereby aligning corporate engagement with national priorities in skilling and job creation.

11.7.2. Rethinking CSR for Livelihoods

11.7.2.1. Moving Beyond Mandates

Socio-economic challenges are rarely amenable to simple solutions; they are complex, interconnected, and demand collective action from governments, corporations, and civil societies acting in unison. To address these effectively, CSR frameworks must evolve beyond compliance mandates and embrace a broader vision that reflects the full scope of corporate operations within national boundaries. Such a shift would direct resources toward areas where development needs are most acute, rather than limiting investments to the immediate vicinity of corporate facilities. At the same time, regulations must move away from an overreliance on quantitative metrics and integrate qualitative impact assessments that capture the nuanced realities of social and economic impact, and wellbeing – particularly for those linked to

Box 11.2. Government vs CSR Spending

Budget spending by the Government and CSR expenditure by corporates largely follow a similar trajectory. While Government budget allocation is invariably much larger than that of corporates, there is a growing recognition of the significant role that CSR can play in supporting the Government's developmental agenda.

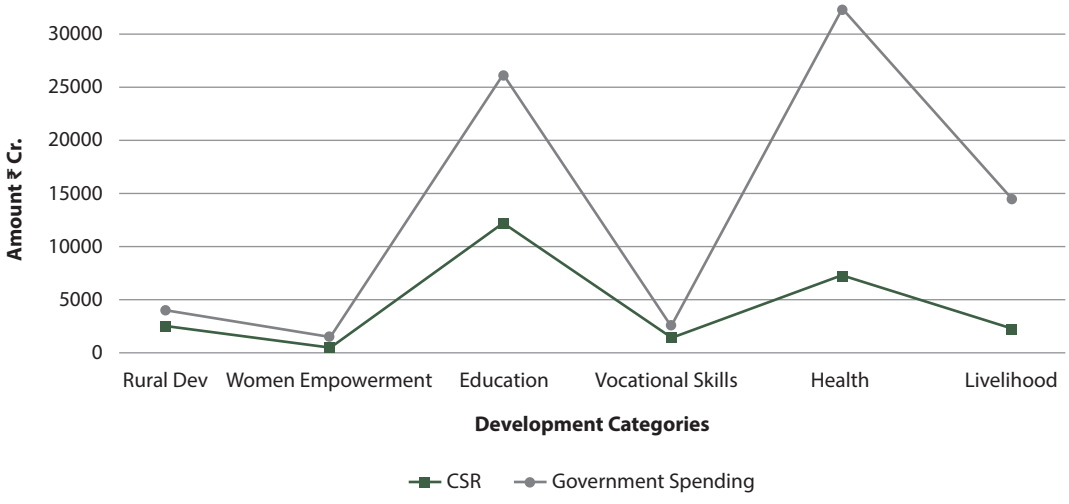

Figure 11.10: Government vs. CSR Spending FY 2023–24

Source: Ministry of Corporate Affairs, & Govt. Budget Spending1

livelihoods. The recent Memorandum of Understanding (MoU) between the Ministry of Statistics and Programme Implementation (MoSPI) and the Indian Institute of Corporate Affairs (IICA) envisions the development of a Comprehensive SDG Alignment Framework integrating National, State, ESG, and CSR indicators to advance the vision of *Viksit Bharat*. This marks a forward-looking step and can potentially usher a significant shift by providing a more accurate and holistic picture of development outcomes. More importantly, alignment between corporate responsibility and national development priorities can help direct CSR investments toward areas of real socio-economic need, particularly in sectors where the impact potential is immense.

Reimagining Corporate Social Responsibility for transformative impact requires moving beyond fragmented interventions towards strategic investments for enhancing livelihoods that can simultaneously address income security and human development. Agriculture presents one of the most compelling cases for such intervention. As the backbone of India's economy, it employs approximately nearly half of the labour force and sustains millions of small and marginal farmers, yet remains acutely vulnerable to climate change while struggling with persistent structural constraints – low productivity, fragmented markets, and inadequate access to technology and finance. Strategic CSR investment in agricultural and rural livelihoods can address these systemic challenges by promoting sustainable farming practices, minimizing post-harvest wastages, improving farm profitability, and embedding circular economy principles, and in agricultural residue management.

Beyond agriculture, entrepreneurship is another key priority for CSR investments, offering a powerful means to generate sustainable, locally anchored employment and strengthen both urban-rural economies. By supporting micro-entrepreneurs, particularly women and youth, CSR can enable communities to become producers and innovators rather than beneficiaries of aid. Facilitating access to finance, skilling, technology, and market linkages helps small enterprises grow and integrate into larger value chains, creating diversified and resilient livelihood opportunities. Such ecosystem-based approaches also diminish dependence on agriculture alone, mitigate migration pressures, and foster self-reliance. When CSR promotes entrepreneurship-led livelihood models, it not only advances income security but also nurtures dignity, agency, and long-term rural transformation. Through integrated approaches of investments in both farm and non-farm-based income sources, that recognise the interconnected nature of economic, social, and environmental challenges, CSR can move beyond compliance-driven philanthropy to become an enabler for systemic and sustainable transformation.

11.7.2.2. Frameworks for Scale- 3R and 3P

For corporates, the challenge in livelihoods-focused initiatives lies not just in investment but in designing programmes that go beyond standalone projects to ensure sustained income generation and lasting improvements in markets, supply chains, and community well-being. True reputational and economic gains emerge only when initiatives are scalable and replicable.

Two complementary frameworks guide corporate toward meaningful scale. The 3R framework – Responsibility, Relationships, and Rebuilding Trust – provides an ethical and institutional foundation.

- Responsibility urges companies to move beyond compliance and own the social impact of their operations
- Relationships emphasise collaboration with governments, civil society, and communities, ensuring inclusive and sustainable change
- Rebuilding trust, the most critical element, requires consistent transparency, communication, and engagement to earn credibility and legitimacy

Building on this compass, the 3P model – Pilot, Propagate, Proliferate – offers a practical roadmap.

- Pilot tests solutions on a manageable scale, engaging communities and refining approaches
- Propagate expands successful pilots across regions, adapting programmes to local contexts

- Proliferate integrates initiatives into mainstream CSR, creating replicable systems that generate lasting socio-economic impact and influence markets, policies, and resilience

Together, these frameworks demonstrate that scaling is not just about doing more – it is about doing better, with purpose, replicability, and measurable impact. For corporates, internalising these approaches strengthens confidence to invest in livelihoods initiatives while delivering tangible social and economic returns.

11.7.2.3. The Livelihoods Imperative

Ultimately, the question is no longer whether corporations can afford to invest in livelihoods, but whether society can afford the consequences if they do not – especially in an era marked by job displacement driven by AI and climate change. Companies that adopt this long-term vision move beyond compliance to become architects of social opportunity, empowering individuals, families, and communities across generations. Livelihoods represent more than income – they embody dignity, autonomy, and the freedom to shape one's future. As the landscape of CSR continues to evolve, investment in livelihood creation emerges as a pathway for businesses to drive lasting social impact while building resilient and equitable societies. The essence of CSR lies in transforming incomes into lasting self-sufficiency and empowerment. The call for greater CSR investment is not merely a demand for accountability but a gesture of trust bestowed upon business enterprises. It reflects a call from the government to join hands as partners in driving social change, and a belief from civil society organisations that wherever the government, despite its best efforts, may be unable to reach or may leave certain areas unattended, the corporate sector, in collaboration with these organisations, can step in to bridge those gaps and create meaningful impact.

Endnotes

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9 The Government of India budget spend figures under core developmental areas have been taken from the Actual Budget spent for FY 2023–24, as reflected in the Budget documents for FY 2024–25. Rural Development expenditure amounted to ₹3960.13 Cr., comprising Special Programmes for Rural Development (₹3793.24 Cr.) and Other Rural

Development Programmes (₹166.89 Cr.). Women Empowerment spending stood at ₹1521.66 Cr., which includes allocations for Mission Shakti. Education expenditure has been drawn from the developmental sub-head 'General Education' under the Ministry of Education. Vocational Skills spending totaled ₹2446.54 Cr. under 'Labour, Employment and Skill Development' for the Ministry of Skills. Health expenditure corresponds to the developmental sub-head 'Medical and Public Health' under the Ministry of Health and Family Welfare. Livelihood Enhancement spending combines allocations for the National Rural Livelihoods Mission[6] (₹501.39 Cr.) and the National Urban Livelihoods Mission[7] (₹13934.13 Cr.).

[10] The CSR spend for FY 2023–24 figures have been derived after combining all the 29 sub-heads into relevant 12 core development sectors as envisaged in the CSR act by the Ministry of Corporate Affairs.

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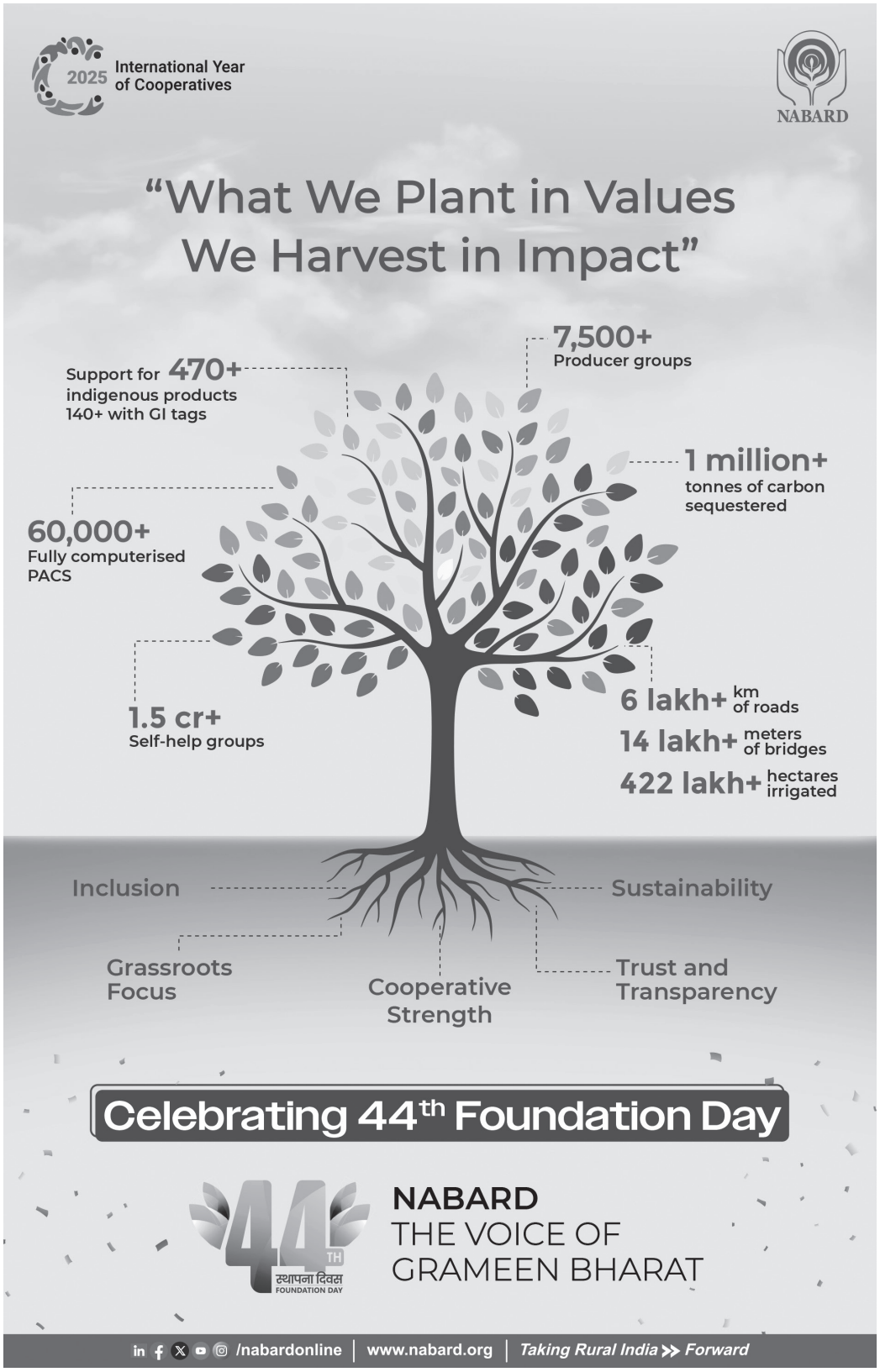

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The State of India's Livelihoods (SOIL) Report is an annual publication addressing the contemporary issues in the livelihoods sector. For the last 17 years, it has served as an authoritative commentary for policymakers, practitioners, researchers, and other stakeholders committed to strengthening the livelihoods of those living in poverty. It uniquely aggregates the experiences and challenges of the livelihoods sector, analyses case studies and reports on the progress of both government and private-led programmes.

This year's edition comes at time when India continues to grow steadily despite global volatility, yet the central challenge of creating sufficient, decent employment remains. With millions entering the labour force each year, the pressure on agriculture, still the main source of livelihoods for rural India, has intensified. At the same time, the non-farm economy is expanding, offering new opportunities to realise India's demographic potential.

Against this backdrop, the 2024–25 SOIL Report examines the increasing strain on the farm sector, the urgent need to accelerate non-farm and urban livelihoods, and the rising importance of climate-resilient agriculture. This edition also brings a strong focus on women's economic participation and the care economy, recognising their central role in driving inclusive growth. It studies how emerging non-farm sectors are enabling women's long-term work participation and makes the case for investments in affordable, quality care systems. Additionally, the Report reviews the evolving landscape of Corporate Social Responsibility (CSR) and its growing contribution to livelihoods, poverty reduction, and local economic development.

Aligned with the vision of Viksit Bharat@2047, anchored in economic transformation, social inclusion, sustainable development, and good governance, the Report situates livelihoods at the heart of India's long-term transformation. It synthesises insights from diverse sectors, from agriculture to digital ecosystems to urban informal work, to present a comprehensive picture of the pathways to sustainable and equitable livelihoods.

As India navigates a period of rapid change, this Report serves as an essential guide for advancing livelihood security, expanding economic opportunities, and fostering inclusive growth.

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