



## Agricultural transformation and rural development for developed India: Pathways towards Viksit Bharat 2047

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### Abstract

Agricultural transformation and rural development are central to achieving the vision of a developed India (Viksit Bharat 2047). Agriculture continues to support nearly half of India's workforce while contributing significantly to food security, rural livelihoods, and economic stability. However, low productivity, fragmented landholdings, rural poverty, climate change, and inadequate infrastructure continue to constrain rural development. This research article examines the role of agricultural transformation in promoting inclusive rural development and achieving sustainable economic growth in India. The study is based on secondary data collected from government reports, OECD studies, research journals, and policy documents. The article analyzes trends in agricultural productivity, rural employment, digital agriculture, infrastructure development, and structural transformation. The findings indicate that modernization of agriculture through technology adoption, rural infrastructure, diversification, digital farming, and institutional reforms can significantly enhance rural incomes and contribute to the realization of Developed India by 2047. The paper concludes with policy recommendations focusing on sustainable agriculture, rural industrialization, digital inclusion, and farmer welfare.

**Keywords:** Agricultural transformation, rural development, Viksit Bharat 2047, digital agriculture, rural economy, sustainable development, agricultural productivity

### Introduction

Agriculture remains the backbone of the Indian economy and the primary source of livelihood for rural households. Despite rapid industrialization and service sector growth, nearly 45–50% of India's population still depends directly or indirectly on agriculture for employment and income. Rural development and agricultural transformation are therefore essential for achieving inclusive and sustainable economic growth.

Agricultural transformation refers to the process of shifting from traditional subsistence farming to modern, market-oriented, technology-driven, and productive agricultural systems. It involves:

- Mechanization
- Irrigation expansion
- Crop diversification
- Digital agriculture
- Value addition
- Rural infrastructure development
- Institutional reforms

India's vision of "Viksit Bharat 2047" emphasizes rural prosperity, agricultural modernization, food security, and sustainable livelihoods. Recent studies show that structural transformation in rural India has accelerated due to technological adoption, infrastructure improvements, and diversification of rural employment.

### Objectives of the Study

The study aims to:

1. Examine the role of agricultural transformation in rural development.
2. Analyze recent trends in India's agricultural sector.
3. Evaluate the relationship between agriculture and economic development.

4. Study challenges affecting rural transformation.
5. Suggest policy measures for achieving Developed India by 2047.

### Research Methodology

The present study is based on secondary data collected from:

- Government reports
- Research journals
- OECD publications
- NABARD reports
- World Development studies
- Academic research articles

The study uses descriptive and analytical methods to interpret data related to agricultural productivity, rural employment, infrastructure, and digital transformation.

### Conceptual Framework of Agricultural Transformation

Agricultural transformation involves the transition from:

- Low productivity farming → High productivity agriculture
- Subsistence farming → Commercial farming
- Manual labor → Mechanized farming
- Traditional markets → Integrated value chains
- Rain-fed farming → Climate-smart agriculture

### Components of Agricultural Transformation

1. Technological modernization
2. Rural infrastructure development
3. Institutional reforms
4. Financial inclusion
5. Market integration
6. Digital agriculture
7. Sustainable farming practices

### Trends in Indian Agriculture

India has witnessed significant changes in agricultural production, productivity, and rural livelihoods since the Green Revolution.

**Table 1:** Share of Agriculture in India’s Economy

Indicator	1991	2024
Share of Agriculture in GDP (%)	29	15–16
Employment in Agriculture (%)	64	45
Food Grain Production (Million Tonnes)	176	330+
Irrigated Area (%)	36	52

**Source:** Government of India, Economic Survey, NABARD Reports.

The declining share of agriculture in GDP alongside continued dependence on agriculture for employment reflects structural transformation challenges.

### Agricultural Transformation and Rural Development

#### 1. Agricultural Productivity and Rural Income

Increased agricultural productivity enhances:

- Rural incomes
- Employment opportunities
- Food security
- Purchasing power
- Rural demand

Research on rural India indicates that agricultural intensification during the Green Revolution reduced poverty and increased rural incomes.

#### 2. Rural Infrastructure Development

Infrastructure plays a crucial role in rural transformation.

**Table 2:** Impact of Rural Infrastructure on Agriculture

Infrastructure	Impact
Rural Roads	Better market access
Irrigation	Increased crop productivity
Storage Facilities	Reduced post-harvest losses
Electricity	Mechanization support
Internet Connectivity	Digital farming and market access

Studies reveal that rural road connectivity significantly increases technology adoption, crop diversification, and labor market integration.

#### 3. Digital Agriculture and Smart Villages

Digital technologies are transforming Indian agriculture through:

- Precision farming
- Satellite monitoring
- AI-based crop management
- Mobile-based market information
- Smart irrigation systems

Recent studies on smart villages emphasize the importance of digital agriculture in improving rural livelihoods and agricultural efficiency.

**Table 3:** Benefits of Digital Agriculture

Technology	Rural Development Impact
AI-based farming	Improved productivity
Drones	Crop monitoring
Mobile applications	Market information
IoT sensors	Water management
Satellite data	Climate forecasting

### Structural Transformation and Rural Employment

Structural transformation involves movement of labor from agriculture to industry and services.

**Table 4:** Changes in Rural Employment Pattern

Sector	Employment Share 2000 (%)	Employment Share 2024 (%)
Agriculture	60	45
Industry	18	25
Services	22	30

Studies indicate that rural households increasingly depend on non-farm employment and diversified livelihoods.

### Challenges of Agricultural Transformation

#### 1. Fragmented Landholdings

Small and marginal farmers dominate Indian agriculture, limiting economies of scale.

#### 2. Climate Change

Extreme weather events, droughts, and floods threaten agricultural sustainability.

#### 3. Rural Poverty

Despite growth, rural income disparities remain significant.

#### 4. Technological Inequality

Many rural areas lack access to digital technologies and modern farming techniques.

#### 5. Market Inefficiencies

Farmers often face:

- Price fluctuations
- Middlemen exploitation
- Limited storage facilities

### Government Initiatives for Rural Transformation

India has introduced several programs to modernize agriculture and improve rural development.

**Table 5:** Major Government Schemes

Scheme	Objective
PM-KISAN	Income support to farmers
PMGSY	Rural road connectivity
Digital Agriculture Mission	Technology integration
e-NAM	Online agricultural markets
PM Fasal Bima Yojana	Crop insurance
Soil Health Card Scheme	Scientific soil management

NABARD has also expanded agricultural credit support to strengthen rural infrastructure and farm investment.

### Agricultural Transformation and Viksit Bharat 2047

For India to become a developed nation by 2047, rural transformation must focus on:

- Sustainable agriculture
- Climate resilience
- Farmer income growth
- Rural industrialization
- Digital inclusion
- Agro-processing industries
- Green technologies

**Table 6:** Roadmap for Developed India 2047

Priority Area	Strategy
Sustainable Farming	Organic and climate-smart agriculture
Rural Employment	Agro-based industries
Technology	AI and precision farming
Infrastructure	Smart villages and digital connectivity
Financial Inclusion	Rural credit expansion
Human Capital	Agricultural education and skill development

**Findings of the Study**

1. Agricultural transformation is essential for rural prosperity and economic development.
2. Modern technologies significantly improve agricultural productivity and rural income.
3. Rural infrastructure development accelerates market integration and employment diversification.
4. Digital agriculture can transform rural areas into smart villages.
5. Structural transformation is reducing dependence on agriculture for employment.
6. Climate change and fragmented landholdings remain major challenges.
7. Government initiatives and institutional support are critical for inclusive rural development.

**Conclusion**

Agricultural transformation and rural development are fundamental pillars for achieving the vision of Developed India (Viksit Bharat 2047). Modernizing agriculture through technology, infrastructure, digital innovation, and sustainable practices can significantly improve rural livelihoods and national economic growth.

India's rural transformation requires integrated policies focusing on:

- Agricultural productivity
- Rural industrialization
- Digital inclusion
- Climate resilience
- Farmer welfare

A balanced strategy combining economic growth with social equity and environmental sustainability is essential for creating prosperous rural communities and achieving inclusive national development.

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