



The contribution of agriculture to employment and GDP in India

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Abstract

Agriculture has historically played a central role in India's economic development by contributing to national income, employment generation, food security and rural livelihoods. However, the sector has undergone significant structural transformation since independence. This study examines the changing contribution of agriculture to employment and Gross Domestic Product in India from the 1950s to 2021. The analysis is based on secondary data obtained from government reports, national accounts, NSSO and Periodic Labour Force Survey data, RBI publications, state economic surveys and reports of international organisations. The study reveals that agriculture's share in India's GDP declined from approximately 52 per cent in 1950–51 to around 15–17 per cent in recent decades. In comparison, the decline in agricultural employment has been relatively slow, resulting in a substantial gap between the sector's output contribution and workforce dependence. This imbalance indicates low labour productivity, disguised unemployment, seasonal underemployment and limited availability of productive non-farm employment. The study also highlights substantial regional variations through the cases of Punjab, Kerala and Bihar. Punjab represents high-productivity and irrigation-intensive agriculture, Kerala reflects a service-oriented economy with limited dependence on farming, while Bihar continues to exhibit high agricultural employment and relatively low productivity. Major policy interventions such as the Green Revolution, economic liberalisation, MGNREGA, minimum support prices, crop insurance and agricultural income-support programmes have improved production and rural security, but have not fully addressed structural employment problems. The COVID-19 pandemic further demonstrated agriculture's resilience, as the sector recorded positive growth despite contraction in the overall economy. The study concludes that sustainable agricultural development requires productivity enhancement, crop diversification, climate-resilient farming, market reforms, improved rural infrastructure and accelerated creation of manufacturing and service-sector employment to absorb surplus agricultural labour.

Keywords: Agriculture, employment, gross domestic product, structural transformation, agricultural productivity, disguised unemployment, rural economy, India

Introduction

Agriculture in India has undergone a dramatic structural transformation since independence. Its share of GDP plummeted from roughly half of the economy in 1950–51 to around 15–17% by the 2010s, even as it continued to employ a very large share of the workforce (roughly half into the 2000s). For example, agriculture accounted for 51.8% of GDP in 1950–51 but only ~13.2% by 2014–15, and by 2019 its GDP share was roughly 17%. Employment in agriculture likewise fell (from >70% in the 1950s to around 60% by 2000 and roughly half or less by the 2010s), although it remains the single largest sector employer. Output per worker in farming has historically been far lower than in industry or services, reflecting low productivity (typical of subsistence agriculture and “disguised unemployment”) – for instance, non-farm workers are several times more productive on average than farm workers. Key policy shocks – notably the Green Revolution in the 1960s, economic liberalization in 1991, and rural programs like MGNREGA (2006) and the recent PM-KISAN/MSP regimes – have reshaped agricultural growth, incomes and labor patterns. In recent years, India's agriculture achieved robust output growth (reaching record-high production and farm incomes), but continuing underemployment and informal labor remain challenges. COVID-19 initially disrupted farm labour and supply chains, yet foodgrain production rose in 2020–21 as the rest of GDP contracted. We present comparative tables of agriculture's GDP and employment shares over decades and

across states (e.g. Punjab: 25.5% of GSDP in 2017–18 vs. Kerala: 10.8% in 2021–22), and analyze productivity, gender dynamics, and seasonal employment. Finally, we discuss likely trajectories and policy implications: agriculture must continue modernizing (closing yield gaps, diversifying away from water-intensive cereals) while accelerated industrial and service job creation is needed to absorb surplus rural labor.

Research Methodology

The present study adopts a descriptive, analytical and comparative research design to examine the changing contribution of agriculture to employment and Gross Domestic Product in India. The study is entirely based on secondary data and covers the period from 1950–51 to 2020–21. This extended time frame has been selected to understand the long-term structural transformation of the Indian economy and to compare the rate of decline in agriculture's contribution to national output with the decline in the proportion of workers dependent upon the sector. Secondary data have been collected from publications of the Ministry of Statistics and Programme Implementation, Ministry of Agriculture and Farmers Welfare, Reserve Bank of India, National Sample Survey Organisation, Periodic Labour Force Survey, Population Census of India, state economic surveys and national income accounts. Reports and databases published by international organisations such as the World Bank, Food and Agriculture Organization and Organisation for Economic Co-operation and Development

have also been consulted. Relevant books, research papers, policy reports and government documents have been used to interpret the statistical trends and policy developments. The study uses percentage, ratio, trend and comparative analyses. Agriculture's percentage share in GDP or Gross Value Added has been compared with its percentage share in total employment for selected benchmark years. The difference between these two shares has been used as an indicator of the imbalance between agricultural output and workforce dependence. Agricultural labour productivity has been examined conceptually by comparing output per worker in agriculture with that of the industrial and service

sectors. Tables and figures have been used to present changes in sectoral contribution, employment structure, crop productivity and regional variations.

Historical Trends (1950s–2021)

Agriculture's share of national income has steadily declined over 70 years. In 1950–51, agriculture (crop+allied) contributed about 52% of GDP; by the 1980s this was ~33%. Continuing declines brought agriculture's GDP share to only 13.24% in 2014–15, with a slight rebound (~17%) by 2019.

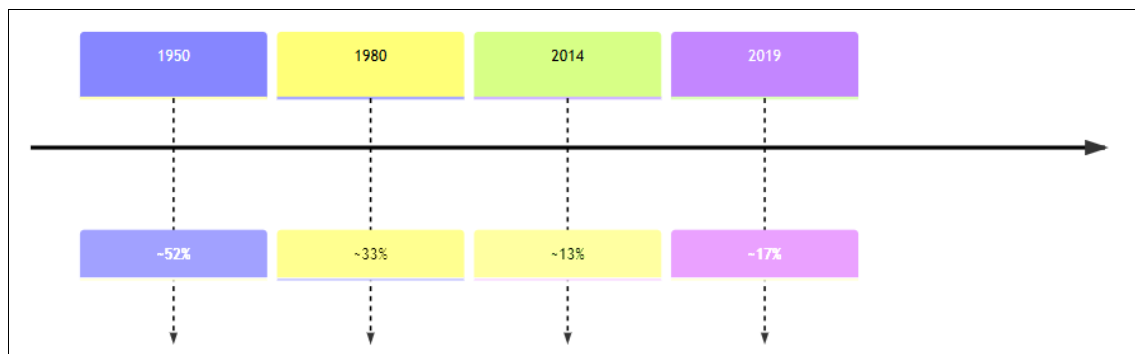


Fig 1: Agriculture share of GDP in India (1950–2020)

The labour force share also fell, but more slowly. Between 1950 and 1980 the agriculture workforce share hovered above 70%; it dropped to 60% by 2000. By the 2010s, various estimates put the agricultural workforce around 45–60% of total (e.g. 58% in 2011 Census, about 42–45% by 2017–18). In short, a large (though shrinking) labour force still supplies a small (and shrinking) share of output, reflecting the classic “development” process with hidden/unemployment and productivity gaps in farming. The table below contrasts agriculture's GDP and employment shares in representative years (approximate, from official sources and surveys):

Table 1: Sector Shares over Time.

Year	Agric. share of GDP	Agric. share of Total Employment
1950–51	~52.0%	~72% (est.)
1980–81	~32.7%	~65% (approx.)
2000–01	~25% (Rough estimate)	~60% (NSSO 1999–00)
2011–12	~18–20% (GSDVA)	58% (Census 2011)
2014–15	13.24%	~48% (NSSO 2011–12)
2019–20	~17%	~45% (PLFS 2017–19 era)

Sources: MOSPI, NSSO/PLFS, RBI data and national accounts (all ≤2021). (Exact survey definitions vary; figures are for “main workers” in agriculture.)

Over time, agriculture's absolute value (output) has grown but far less than industry/services. This is illustrated by ever-larger productivity gaps: in 2018 the output (GVA) per worker in manufacturing/services was roughly 3–5× higher than in agriculture. Agricultural yields also vary regionally: for example, Punjab's irrigated yields of wheat/rice exceed those of Bihar or rainfed regions by a wide margin (see *Regional Case Studies* below). In recent decades total factor productivity in Indian agriculture has improved (e.g. rising by ~3%/yr in 2006–15), but labour productivity remains low due to disguised unemployment.

Sectoral Shares: National and States

National picture: Agriculture and allied activities (forestry, livestock) now account for roughly 15–17% of GDP and around 40–50% of employment. In contrast, services contribute roughly half of GDP (and a growing share of jobs) and industry ~25–30%. The shift to services has accelerated: since 1990, industry's GDP share only rose modestly (~17%→25%), whereas services surged (~31%→50%). Subnationally, the importance of farming varies. Table 2 compares three contrasting states. Punjab is a rich, irrigated agrarian state, Kerala is service-oriented, and Bihar is still heavily rural/agrarian.

Table 2: Agriculture's Share in Selected States (recent years).

State	Agric. share of GSDP	Agric. share of workforce (est.)
Punjab (2017–18)	25.5%	~40–45% (PLFS estimate)
Bihar (2014–17)	~20%	~70% (census-based)
Kerala (2021–22)	10.8%	~10–15% (PLFS data)

(Source for GDP share of agriculture: MOSPI/RBI/State statistics). (Workforce shares are estimates: e.g. PLFS 2018–19 reports Kerala's agrarian workforce ~12–15%.) Punjab's agriculture accounts for over a quarter of its economy and roughly half of its rural population depends on farming. Bihar's economy remains agro-based (~20%), employing most of its rural poor. By contrast Kerala has only a ~11% agri GDP share and a much higher services share (~64%). These differences underscore India's regional diversity: high-productivity farming in the north vs. service/remittance-driven growth in Kerala and persistently agrarian economies in poorer states like Bihar.

Productivity (Output per Worker, Yields)

India's agricultural productivity remains low by international standards, though it has steadily improved. Output per farm worker (agri GVA per worker) is a small fraction of that in industry or services. For example, RBI-KLEMS data suggests that, in recent years, a worker in non-

farm manufacturing or services produces 3–4 times the value of one in farming. This disparity reflects underemployment: many farms have more labor than needed. In cereals, yields vary widely by state and ecology: for rice, irrigated Punjab sees ~3.3 t/ha vs. Bihar's ~1.9 t/ha in rainfed areas. (The FAO notes that India's overall rice yield was ~2.85 t/ha in the 2000s, with <8% of districts exceeding 3 t/ha.) Improving yields via better seeds, irrigation, fertilizer, and mechanization has been a policy focus (Green Revolution, later hybrid seeds, etc.).

Table 3: Productivity Indicators (illustrative).

Crop/Region	Yield (t/ha)	Notes
Rice, Punjab	3.3–4.0	High-irrigation state
Rice, Bihar	<2.0	Many rainfed areas
Wheat, Punjab	~4.0 (very high)	Irrigated agri belt
Average India	~3.5 (rice), ~3.0 (wheat)	national averages

(Sources: Ministry of Agriculture; FAO and academic estimates. These are approximate; actual values vary year to year.)

Thus, per-hectare and per-worker productivity remain major bottlenecks. Policy interventions like soil health cards, subsidies, and irrigation expansion have aimed to raise yields, but challenges (waterlogging, soil degradation) persist. The disparity in productivity also implies that labor migration out of farming is needed to raise overall welfare: as nearly two-thirds of new workers historically entered agriculture, productivity growth must come from reallocating surplus labor into higher-value sectors.

Structural Transformation

India's economic transformation has been slower than China's: agriculture's share of employment fell slowly. From 1950–1980 the farm workforce share barely budged (~70%), then fell to ~60% by 2000. As [OECD 2021] notes, India's agriculture absorbed much of the expanding labour force (especially women) instead of seeing a large exodus. (In other words, schooling and demographic changes boosted female agri participation even as per-capita incomes rose – an unusual pattern.) Only in the last decade has a sharper shift occurred: PLFS data indicate *non-farm* sectors now employ a majority, and female labor force participation in rural areas has declined.

Key points of structural change:

- **Urbanization and Services:** Services share of output and jobs has expanded dramatically (to ~50% of GDP and a rising employment share). Major cities have grown, drawing rural migrants.
- **Non-Farm Rural Jobs:** Wage employment in construction and services grew, partly absorbing rural labor. For example, construction jobs grew from 14% to 30% of rural non-farm employment (1993–2012). However, these gains are uneven.
- **Declining Male Farm Work:** Studies note “defeminization” of ag – fewer women working as family labor in fields – reflecting some withdrawal from work or shift to better opportunities.

Overall, India is still in mid-transition: farming employs far more people than its output share, implying large underemployment. Non-agricultural job creation (especially in manufacturing) has lagged, slowing a full structural shift.

Policy Impacts

- **Green Revolution (1960s–80s):** Introduction of high-yield seeds, fertilizers and irrigation (especially in Punjab/Haryana) massively boosted grain output. Agricultural GDP growth averaged ~4–5%/yr for decades after 1966. However, the expansion of output did not reduce farm employment share significantly; indeed, more labor remained in fields as output grew. Long-run effects include depleted water tables and reduced crop diversity (monocropping).
- **Economic Liberalization (1991):** Trade and deregulation opened input markets and exports (e.g. for fruits, spices), but agriculture was largely insulated (no major land reforms or dismantling of subsidies). The immediate impact on growth was modest; however, farmers faced import competition for some crops. Overall, liberalization coincided with continuing decline in agri's GDP share (as industry surged), but it did not absorb rural labor quickly (jobless growth intensified).
- **MGNREGA (2006):** The National Rural Employment Guarantee provided 100 days of wage work in villages. Studies show it raised rural wages (especially for landless labor) by creating alternative work. It likely induced some landowners to mechanize or shift crops (due to higher labor costs), and gave rural households a safety net that reduced distress migration. Its long-run impact on structural shift is debated, but it certainly put upward pressure on farm wages and slowed a further drop in agricultural employment.
- **Crop Insurance (e.g. PMFBY, 2016):** This scheme aimed to compensate farmers for crop losses, reducing risk. Adoption has been patchy; while it provided some income support after disasters, issues with low coverage and premium burdens have limited its poverty-alleviation effect.
- **Minimum Support Prices (MSP):** Long-standing policy to guarantee prices for key grains (rice/wheat). MSP has bolstered production of those crops (a key factor in Punjab's prosperity) but also led to distortions: farmers favour rice/wheat (leading to soil/groundwater issues) while pulses/oilseeds fell behind. Recent government focus on MSP aims to expand procurement to more crops. MSP guarantees raise agricultural incomes, but can contribute to budget costs and market rigidities.

In summary, policy interventions raised output and incomes, but have not fully resolved low productivity or diversification. Green Revolution spurred growth but created environmental stress. Recent policies cushion risk (MGNREGA, insurance) or incentivize output (MSP), but agriculture remains vulnerable to climate shocks and price volatility.

Gender and Informal Employment

Agriculture's workforce has a high share of informal and unpaid labor. The bulk of farmers are smallholders or landless laborers; most work arrangements are casual or self-employed. For women, agriculture remains the largest employer: women form an increasing fraction of agri workers (as men migrate out). Precise shares vary by source, but by 2011 census women constituted about 36% of cultivators and 65% of agri laborers, many as unpaid family help. The rise in female labour force participation in the 2000s was largely in agriculture (the sector "absorbing women" even as male LFPR stagnated).

Formally, the *organized* sector absorbs only ~10% of total workforce; agriculture (mostly informal) supplies roughly 50%. Thus, upwards of 90% of agricultural employment is "informal" (not on payrolls, with no job security). Female agri workers are disproportionately informal/unpaid. For example, NSSO surveys find that a large share of female agricultural "work" is recorded as unpaid household work. Overall, informality in agriculture means low and volatile earnings, little labor protection, and wide gender disparities. We lack space for a full gender analysis, but note: Feminization of agriculture (more women in fields) and persistent wage gaps are well-documented. For instance, NSS data show *all-India* female rural LFPR fell from 49% in 1987–88 to ~25% in 2018 (PLFS), while male LFPR fell less; many women effectively withdrew (whether for education, informal tasks, or because of underemployment). NGOs and scholars stress that empowering female farmers (tenure, credit, and training) is key to raising sectoral productivity and equity.

Seasonal and Underemployment

Agricultural work is highly seasonal, causing underemployment (workers idle part-year). Most crop labor is needed in sowing/harvest seasons, leaving periods of unemployment in between. NSS-PIFS time-use surveys show many rural workers in agriculture work far fewer than 300 days/year on the farm. This hidden unemployment means rural households take up MGNREGA work or migrate seasonally. Quantitative measures of seasonal underemployment are scarce, but anecdotal evidence is strong (e.g. ~55% of 'off-season' agricultural labor is unemployed in some surveys). Addressing this requires not only foodgrain production but also year-round employment (off-farm jobs, crop diversification into cash/vegetables, irrigation to allow multiple crops).

COVID-19 Impacts (to 2021)

The COVID-19 pandemic (2020–21) had mixed effects on agriculture. The nationwide lockdown (Mar–May 2020) initially disrupted harvests and migration, causing urgent labor shortages on farms and distress for migrant workers. However, the Rabi harvest of 2019–20 was largely collected before lockdowns. Remarkably, in FY2020–21 (Apr–Mar) agri-GDP grew ~3.4% despite a 7.3% contraction in overall GDP, thanks to good monsoons and food price support. Agricultural output (especially cereals and horticulture) reached record levels. The sector's share of GDP actually rose (around 20%) in 2020–21, not due to huge gains in agriculture but due to the collapse of industry and services.

On the labor side, many urban migrants returned to villages, temporarily swelling rural labor supply. Yet the reverse migration and MGNREGA (which saw high demand in 2020) stabilized incomes. Surveys in 2020–21 indicate rural unemployment spiked only briefly, then eased as farm work resumed. Overall, COVID-19 did not cause a collapse in agricultural production, but it highlighted vulnerabilities: dependence on seasonal and informal labor, and the need for social safety nets. Policy responses (lower interest rates for farmers, free foodgrain distributions, etc.) helped cushion the shock.

Case Study: Three Contrasting States

Punjab: The classic Green-Revolution state, Punjab illustrates high productivity and over-reliance on a few crops. Agriculture is ~25.5% of Punjab's GSDP, but by 2019 only ~40–45% of workers remained in farming (down from ~53% in 2004–05). Per-hectare yields in Punjab are India's highest (e.g. wheat ~4.0 t/ha, rice ~3.3–3.5 t/ha). Punjab benefited from state support (subsidies, assured irrigation) but now faces stagnating farm incomes and environmental stress (soil salinity, depleting aquifers). Crop diversification and promoting off-farm jobs are urgent: studies note many Punjabis are moving out of farming, and rural women in particular are shifting to non-farm activities.

Kerala: In stark contrast, Kerala's economy is service-driven. Only ~10.8% of Kerala's GSVA is from agriculture, and less than 15% of its workforce engages in farming. Kerala grows mostly coconut, rubber, spices – high-value but land-intensive crops. Productivity per hectare is moderate (much of the agriculture is plantation-based). Kerala's rural workers typically earn more from remittances or services. The low agri-GVA share reflects both very small farm sizes and strong alternative sectors (tourism, IT, remittances). For Kerala, "agriculture" is not the backbone, and policy focuses on organic farming, contract farming and price support for spices.

Bihar: A poor, densely populated state, Bihar remains heavily agrarian. About 74% of its population depends on agriculture and farming contributes roughly 20% of state GSDP. Landholdings are tiny and rains unpredictable, so per-capita productivity is low. Many farm families earn from migration to other states. Seasonal underemployment is high; large rural labor pools keep agricultural wages low. Bihar exemplifies the development challenge: transitioning an overwhelmingly agrarian state into industry/services has been slow. (Recent years saw some growth in rural non-farm sectors, but still insufficient to absorb surplus labor.) These case studies highlight that state policies and agro-ecology matter: Punjab's growth came from irrigation and subsidies, Kerala's from education and remittances, Bihar's lagging from land fragmentation and low investment. Tailored interventions (e.g. micro-irrigation in Bihar, cropping pattern shifts in Punjab, credit for Kerala's farmers) are needed per region.

Projections and Policy Implications (Beyond 2021)

Most analysts project continued GDP share decline for agriculture (<15% by mid-2020s), as services dominate, but with output continuing to rise in absolute terms. If growth

rates of ~3–4% continue, India will have robust food surpluses by 2035. Key priorities for policy include:

- **Enhancing Productivity:** Continue R&D (new seeds, livestock breeds), precision farming, and infrastructure (irrigation, cold chains). Close state-level yield gaps (e.g. push irrigation and mechanization in Bihar/MP) so per-farm income rises.
- **Market Reforms:** Improve price discovery (market linkages, e-NAM), rationalize subsidies (soil-health/gas-based urea), and ensure MSP covers pulses/oilseeds to encourage diversification. Crop insurance needs redesign for better coverage and incentive.
- **Land and Labor Policy:** Facilitate consolidation of fragmented farms, and better land leasing/tenancy rules to improve efficiency. Encourage alternative rural employment – e.g. agro-processing units, small-scale manufacturing, and services – to draw surplus labor out of unproductive farming. Achieving the government's target of 25 million formal jobs/year would require major industrial/service growth.
- **Social Safeguards:** Strengthen rural social safety nets (MGNREGA, rural pensions, and health) to protect vulnerable farm households, especially in shocks. Invest in rural education and skills so agricultural families can move up the value chain or out of farming.
- **Climate Resilience:** Promote climate-smart agriculture (drought-resistant varieties, water harvesting) as climate change poses risks. The pandemic also underscored the need for food-stockpiles and diversified sourcing.

Assumptions: This analysis assumes continuity of current trends and policies up to 2021. Data gaps exist: for example, state-level employment by sector is imprecise (PLFS covers only post-2017); productivity is hard to measure precisely. Some policy impacts (e.g. PM-KISAN income support) are still early to evaluate. Figures are generally based on official estimates (e.g. GDP by sector at constant prices).

In sum, agriculture remains a crucial but diminishing pillar of India's economy. Its declining GDP share and ongoing structural transformation have important social implications. Balancing the need for food security with economic modernization requires nuanced policies that raise farm productivity and incomes, while accelerating non-farm job growth to absorb the large rural workforce.

Conclusion

Agriculture has remained one of the most important foundations of the Indian economy, although its relative contribution to national output has declined considerably since independence. The study demonstrates that agriculture's share in India's GDP decreased from approximately one-half of national output in 1950–51 to about 15–17 per cent in recent decades. However, the proportion of workers dependent on agriculture has declined at a much slower rate. Consequently, agriculture continues to support a substantially larger share of the workforce than its contribution to GDP would justify.

The persistent difference between agriculture's employment share and output share reflects low labour productivity, disguised unemployment, seasonal underemployment and limited expansion of productive non-agricultural employment. Although agricultural production and crop yields have improved over time, the benefits of this growth have not been equally distributed across regions, crops and categories of farmers. Small and marginal holdings, dependence on rainfall, inadequate infrastructure, price uncertainty and limited access to technology continue to restrict agricultural productivity and household income.

The comparative analysis of Punjab, Kerala and Bihar highlights the regional diversity of Indian agriculture. Punjab demonstrates how irrigation, improved seeds, procurement and price support can increase productivity, but it also reveals the environmental consequences of excessive concentration on rice and wheat. Kerala illustrates the declining importance of agriculture in an economy supported by services, education and remittances. Bihar, on the other hand, continues to experience high dependence on agriculture, fragmented landholdings, seasonal unemployment and large-scale migration. Therefore, a uniform agricultural-development policy cannot adequately address the diverse requirements of different states.

Policy interventions such as the Green Revolution, minimum support prices, MGNREGA, crop insurance and income-support programmes have contributed to food security, rural wages and household protection. Nevertheless, these programmes have not fully resolved the structural problem of surplus labour in agriculture. The COVID-19 pandemic further demonstrated the sector's resilience, as agriculture maintained positive growth and absorbed returning migrant workers while several non-agricultural sectors contracted. At the same time, the pandemic exposed the vulnerability of informal workers, small farmers and agricultural supply chains.

The future development of Indian agriculture requires a balanced strategy that combines higher productivity with the gradual transfer of surplus labour to more productive activities. Greater investment is required in irrigation, agricultural research, climate-resilient seeds, mechanisation, rural roads, storage facilities, cold chains and digital agricultural services. Crop diversification towards pulses, oilseeds, horticulture, livestock and other high-value activities can increase farm incomes while reducing pressure on water and soil resources.

Agricultural development must also be supported by the expansion of agro-processing, rural manufacturing, construction and service-sector employment. Education, skill development and entrepreneurship programmes are necessary to enable rural workers to obtain productive non-farm employment. Special attention should be given to women agricultural workers by improving their access to land rights, institutional credit, training, technology and social security.

It may therefore be concluded that the declining share of agriculture in GDP is a normal feature of economic development, but the continued concentration of workers in low-productivity agriculture represents an incomplete structural transformation. India's long-term economic progress will depend not merely on reducing the agricultural workforce but on raising agricultural productivity, improving farmers' incomes and creating secure and productive employment opportunities outside agriculture.

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