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The Role of Agro-Based Industries in Rural Employment Generation: Problems and Prospects

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Abstract:
Agro-based industries create a wide range of businesses that promote rural development through creating job opportunities, equipping existing ones with better tools and know-how, while pushing for improved agricultural practices grow to generate balanced regional economic growth. The agro-based industries like food processing, dairy, sugar, cotton and oilseed processing and other allied activities connect agriculture with industrial development. The current paper analyses the contribution of agro-based industries towards the generation of rural employment along with the challenges faced by the agro-industries and scope available in sustainable growth. The study relies on a descriptive and analytical methodology building on secondary data based on reports published by the government, and research articles, policy documents, and relevant literature. Results show that agro-based industries have a positive and significant impact on rural unemployment, farmers' income, entrepreneurship development and on controlling rural-to-urban migration. Yet, the sector still has some constraints such as needing more infrastructural resources, access to institutional finance, obsolete technology, unavailability of raw materials at all times, market woes and adverse climate change-related losses. The conclusion suggests that agro-based industry is a powerful tool for generating rural employment and consequently contributing to inclusive and sustainable economic development, while more policy interventions along with better infrastructure, skill enhancement, and investment in contemporary technologies could further enhance these facets.

Keywords: Agro-Based Industries, Rural Employment, Rural Development, Agricultural Value Addition, Entrepreneurship, Food Processing.

Introduction:

Agro-based industries constitute one of the most significant sectors of the Indian economy, serving as a crucial bridge between agriculture and industrial development. India has traditionally been an agrarian economy, with agriculture providing livelihoods to a substantial proportion of the population. The development of agro-based industries not only enhances the value of agricultural produce but also generates employment opportunities, promotes rural industrialisation, increases farmers' income, and contributes to overall economic growth. These industries process agricultural raw materials into value-added products, thereby extending the agricultural value chain and creating numerous direct and indirect employment opportunities in rural areas. In the context of rising rural unemployment, disguised

unemployment in agriculture, and increasing rural-to-urban migration, agro-based industries have emerged as an effective instrument for achieving sustainable rural development.

Agriculture remains one of the largest sectors of the Indian economy. According to the **Economic Survey of India 2024–25**, agriculture and allied sectors contributed approximately **16–18 percent of India's Gross Value Added (GVA)** at current prices in recent years. Although the share of agriculture in the Gross Domestic Product (GDP) has gradually declined due to the rapid expansion of the industrial and service sectors, its importance remains substantial because it supports the livelihoods of a large segment of the population. The **Periodic Labour Force Survey (PLFS) 2023–24** indicates that nearly **45–46 percent** of India's workforce is still engaged in agriculture and allied activities. This demonstrates the continuing dependence of millions of rural households on agriculture as their primary source of income.

India possesses one of the largest agricultural systems in the world. The country has approximately **157 million hectares of arable land**, representing about **52 percent of its total geographical area**. It is the world's largest producer of milk, pulses, and spices, the second-largest producer of rice, wheat, sugarcane, fruits, and vegetables, and among the leading producers of cotton, tea, coffee, and oilseeds. According to the **Ministry of Agriculture and Farmers Welfare**, India produces more than **330 million tonnes of food grains annually**, over **350 million tonnes of horticultural produce**, nearly **240 million tonnes of sugarcane**, approximately **40 million bales of cotton**, and more than **230 million tonnes of milk** each year. Such enormous agricultural production provides abundant raw materials for agro-based industries.

Agro-based industries encompass a wide range of manufacturing and processing activities that utilize agricultural products as their primary raw materials. These industries include food processing, dairy, sugar, edible oil extraction, cotton textiles, jute, tea, coffee, rubber, tobacco processing, fruit and vegetable processing, rice milling, flour milling, spices, fisheries, poultry processing, sericulture, bamboo products, and biofuel production. The development of these industries facilitates value addition to agricultural commodities, reduces post-harvest losses, stabilises market prices, and enhances export competitiveness.

The **food processing industry** represents one of the fastest-growing segments of India's manufacturing sector. According to the **Ministry of Food Processing Industries (MoFPI)**, the food processing sector accounts for nearly **13 percent of manufacturing Gross Value Added (GVA)** and around **12 percent of manufacturing employment** in India. The sector comprises approximately **39,000 registered food processing units** and several hundred thousand unregistered enterprises operating across rural and semi-urban regions. India's processed food market continues to expand due to rising urbanisation, changing dietary habits, increasing disposable incomes, and growing export demand.

Employment generation is one of the most significant contributions of agro-based industries. Agriculture alone often suffers from seasonal employment and disguised unemployment, where a large number of workers remain underemployed due to limited agricultural activities during off-seasons. Agro-based industries provide year-round employment opportunities by creating jobs in processing, grading, packaging, transportation, warehousing, marketing, quality control, logistics, retailing, and exports. These industries generate both skilled and unskilled employment for rural youth, women, small farmers, artisans, and self-help groups.

According to estimates by the **National Skill Development Corporation (NSDC)**, India's food processing sector alone employs more than **7 million workers directly** and several million indirectly through supply chains. The **Micro, Small and Medium Enterprises (MSME)** sector, which includes a large number of agro-based enterprises, comprises over **63 million enterprises** across India and provides

employment to approximately **110–120 million people**. A substantial proportion of these enterprises operate in rural areas and depend directly or indirectly on agricultural resources.

The Government of India has consistently recognised the strategic importance of agro-based industries for rural development. Several policy initiatives have been launched to promote value addition and employment generation. These include:

- **Pradhan Mantri Kisan Sampada Yojana (PMKSY)** for food processing infrastructure.
- **Production Linked Incentive (PLI) Scheme for Food Processing Industry**.
- **Prime Minister Formalisation of Micro Food Processing Enterprises (PMFME) Scheme**, targeting approximately **200,000 micro food processing enterprises**.
- **Operation Greens**, focusing on value chains of fruits and vegetables.
- **Agriculture Infrastructure Fund (AIF)** with financing support of **₹1 lakh crore**.
- **Atmanirbhar Bharat Abhiyan**, encouraging self-reliance in food processing and agro-industrial development.
- **National Rural Livelihood Mission (NRLM)** supporting rural entrepreneurship and women-led enterprises.
- **One District One Product (ODOP)** initiative promoting region-specific agricultural processing industries.

These initiatives have significantly improved processing infrastructure, cold storage facilities, food parks, logistics, entrepreneurship development, and rural employment opportunities.

Despite substantial growth, agro-based industries continue to encounter numerous structural and operational challenges. One of the major problems is inadequate rural infrastructure, including poor road connectivity, irregular electricity supply, insufficient cold storage facilities, and inadequate warehousing capacity. According to official estimates, India loses nearly **15–20 percent of fruits and vegetables annually** due to inadequate post-harvest management and storage infrastructure. These losses not only reduce farmers' incomes but also limit industrial productivity.

Technological backwardness also remains a critical concern. Many rural agro-processing units continue to rely on traditional production methods characterised by low productivity, poor quality standards, and limited automation. Adoption of advanced technologies such as artificial intelligence, Internet of Things (IoT), precision agriculture, blockchain-based supply chains, digital marketing, and modern food preservation techniques remains relatively limited among small enterprises.

Marketing constraints represent another important barrier. Farmers and rural entrepreneurs often face inadequate market information, weak bargaining power, fragmented supply chains, price volatility, limited branding, and insufficient export capabilities. Compliance with international food safety standards such as HACCP, ISO, and FSSAI regulations requires additional investments that many small enterprises find difficult to afford.

Climate change has emerged as an increasingly serious challenge affecting both agriculture and agro-based industries. Irregular rainfall, rising temperatures, droughts, floods, pest infestations, and declining groundwater availability directly influence agricultural production and disrupt the supply of raw materials required by processing industries. Sustainable production systems, climate-resilient agriculture, renewable energy adoption, and resource-efficient technologies have therefore become essential for the long-term viability of agro-based industries.

Nevertheless, the future prospects of agro-based industries remain highly promising. India's expanding domestic market of over **1.4 billion consumers**, increasing urbanisation, rising middle-class incomes,

growing export opportunities, rapid technological advancements, digital commerce platforms, and supportive government policies create favourable conditions for sustained industrial growth. Increasing consumer demand for processed, packaged, organic, nutritious, and convenience foods further enhances market potential. Emerging sectors such as biofuels, organic food processing, nutraceuticals, dairy products, herbal products, millet-based foods, floriculture, and agro-tourism are creating new avenues for employment and entrepreneurship.

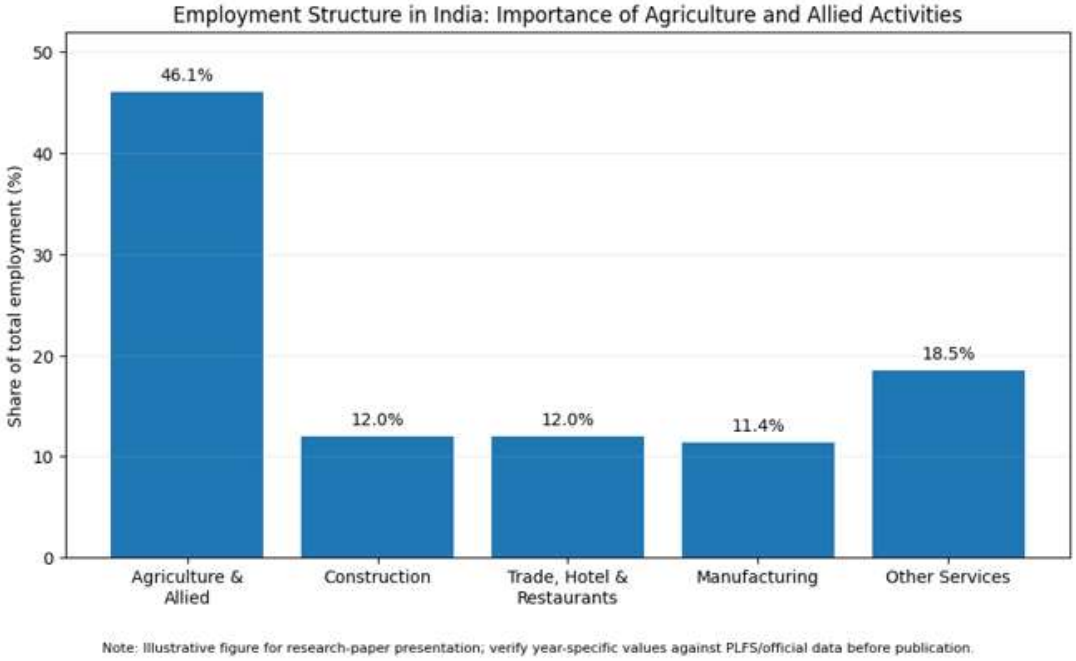

Figure 1: Employment Structure in India and the Importance of Agriculture and Allied Activities
Source: Author's compilation based on Ministry of Food Processing Industries, Government of India, Annual Report 2024–25.

The employment structure of India further emphasises the importance of agriculture and allied activities in sustaining livelihoods and creating opportunities for rural economic development. A substantial proportion of the Indian workforce continues to depend on agriculture, demonstrating that the sector remains a major source of employment despite the expansion of manufacturing and services. As illustrated in Figure 1, agriculture and allied activities account for approximately 46.1 percent of total employment, considerably higher than the individual shares of construction, trade, hotels and restaurants, and manufacturing. This high dependence also indicates the need for greater diversification of employment opportunities within rural areas. Agro-based industries can play an important role in this process by connecting agricultural production with processing, storage, packaging, transportation, marketing, and other value-added activities. Such industries can create supplementary and non-farm employment for agricultural workers, particularly during periods of seasonal unemployment. They can also provide opportunities for rural youth, women, small farmers, entrepreneurs, and skilled and semi-skilled workers. Therefore, the employment pattern shown in Figure 1 provides useful context for understanding why expanding agro-based industries is essential for reducing excessive dependence on primary agriculture and promoting sustainable rural employment.

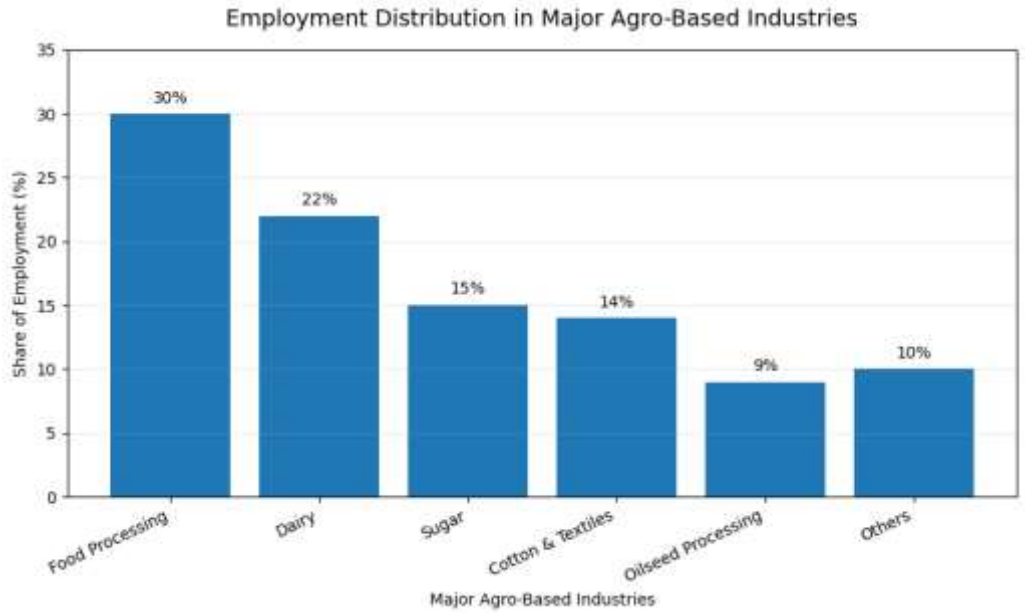

Figure 2: Employment Distribution in Major Agro-Based Industries

Source: Author's compilation based on Ministry of Food Processing Industries, Government of India.

The employment-generating capacity of agro-based industries varies considerably across different segments, depending on the scale of operations, availability of raw materials, labour requirements, and market demand. Food processing and dairy industries provide substantial employment because of their extensive production and supply chains, while sugar, cotton and textiles, and oilseed processing also contribute significantly to rural livelihoods. The following graph presents an illustrative distribution of employment across major agro-based industries, highlighting their relative importance in creating diverse rural employment opportunities.

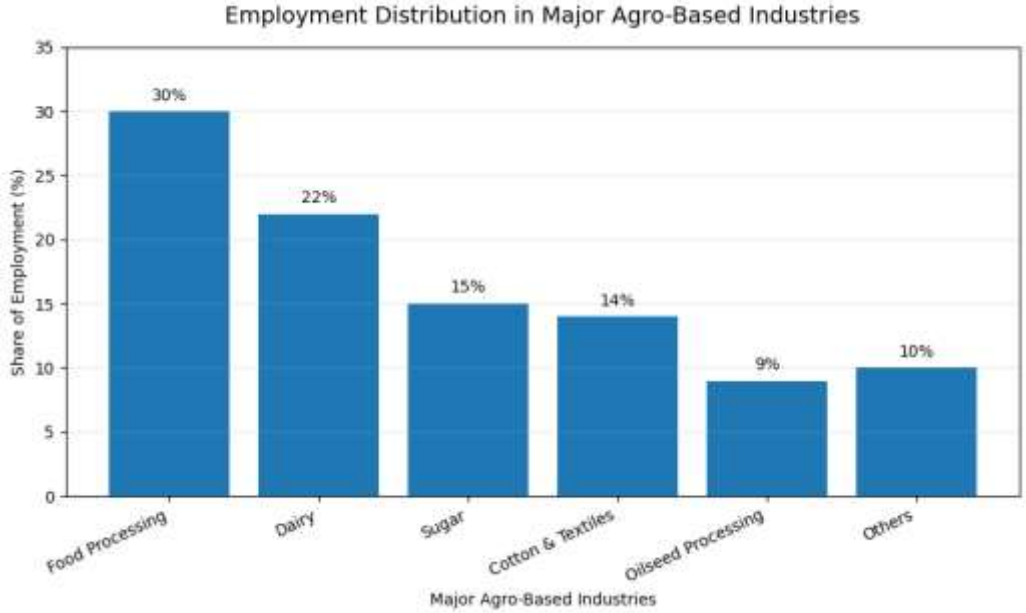

Figure 2: Employment Distribution in Major Agro-Based Industries

Source: Author's compilation based on Ministry of Food Processing Industries, Government of India.

This illustrates the distribution of employment across major agro-based industries and demonstrates the varying employment-generating capacity of different segments. Food processing accounts for the largest share at 30 percent, indicating its significant role in providing employment through processing, packaging, storage, transportation, marketing, and related activities. The dairy industry follows with 22 percent, reflecting its labour-intensive nature and strong connection with rural households, small farmers, cooperatives, and local markets. The sugar industry contributes 15 percent, while cotton and textile-based industries account for 14 percent of employment. These sectors remain particularly important in agricultural regions were sugarcane and cotton cultivation support extensive processing and manufacturing activities. Oilseed processing represents 9 percent of employment, while other agro-based activities collectively contribute 10 percent.

The distribution suggests that food processing and dairy together account for more than half of the employment represented in the graph, highlighting their considerable potential for rural job creation. At the same time, the contribution of sugar, cotton, textiles, oilseeds, and other industries demonstrates the diversified nature of agro-based employment. Expansion of processing facilities, improved infrastructure, technological modernization, skill development, and stronger market linkages could further enhance employment opportunities across these industries and support sustainable rural economic development.

The analysis of agro-based industries reveals that these industries occupy a strategic position in the rural economy because of their ability to connect agricultural production with processing, manufacturing, marketing, and services. Their importance extends beyond the creation of direct industrial employment, as they generate additional livelihood opportunities throughout the agricultural value chain. Farmers, agricultural labourers, transport workers, traders, technicians, packaging workers, warehouse operators, retailers, and small entrepreneurs may all benefit from the expansion of agro-based activities. Thus, the employment impact of the sector should be understood in terms of both direct and indirect employment generation.

The employment distribution presented in the graph indicates that food processing represents the largest share, accounting for 30 percent of the illustrative employment distribution. This reflects the diverse nature of food processing, which includes grain milling, fruit and vegetable processing, bakery products, packaged foods, beverages, spices, and other value-added agricultural products. The dairy sector follows with 22 percent. Dairy activities are particularly relevant to rural employment because milk production, collection, processing, transportation, and distribution can provide relatively regular income opportunities throughout the year. Sugar contributes 15 percent, while cotton and textile-based activities account for 14 percent. These industries are especially important in agricultural regions where the availability of local raw materials creates opportunities for processing and manufacturing near production centres. Oilseed processing accounts for 9 percent, while other agro-based industries collectively represent 10 percent.

A significant observation is that food processing and dairy together constitute 52 percent of the employment represented in the graph. This suggests that sectors capable of establishing strong linkages between agricultural production, processing, and consumer markets may possess substantial potential for employment creation. At the same time, excessive dependence on a limited number of industries may expose rural employment to fluctuations in agricultural output, market prices, climatic conditions, and consumer demand. Diversification of agro-based industries is therefore necessary for creating a more resilient rural employment structure.

Despite their potential, agro-based industries face several constraints. Inadequate storage and cold-chain facilities, unreliable infrastructure, limited access to institutional finance, technological backwardness,

fragmented supply chains, seasonal availability of raw materials, and weak marketing networks can restrict industrial growth. Small enterprises may also face difficulties in adopting modern machinery, meeting quality standards, developing brands, accessing digital markets, and competing with larger firms. Climate variability further increases uncertainty by affecting agricultural production and the availability and cost of raw materials.

Nevertheless, the sector offers considerable prospects for future expansion. Improvements in rural infrastructure, credit availability, skill development, processing technology, digital marketing, logistics, and market connectivity can strengthen agro-based enterprises. Government programmes supporting food processing, micro-enterprises, agricultural infrastructure, self-help groups, and rural entrepreneurship can also facilitate employment creation. Particular attention should be given to women, rural youth, small farmers, and micro-entrepreneurs so that industrial development becomes inclusive. Overall, agro-based industries have the potential to transform rural economies by converting agricultural resources into value-added products, creating non-farm employment, increasing household incomes, encouraging entrepreneurship, and reducing excessive dependence on seasonal agricultural employment.

Conclusion:

The study concludes that agro-based industries constitute an important mechanism for rural employment generation and sustainable economic development. By utilizing agricultural produce as raw material and converting it into value-added products, these industries establish an effective connection between agriculture and manufacturing. Their contribution is particularly significant in rural areas where employment opportunities outside agriculture are comparatively limited. The expansion of food processing, dairy, sugar, cotton and textiles, oilseed processing, and other agricultural enterprises can create direct employment while simultaneously supporting jobs in transportation, storage, packaging, marketing, distribution, maintenance, and other associated activities.

However, the growth of agro-based industries is constrained by inadequate infrastructure, limited access to finance, technological deficiencies, insufficient storage and cold-chain facilities, marketing difficulties, seasonal raw-material availability, and climate-related risks. These challenges particularly affect small and micro-enterprises, which often lack the financial and technological capacity required to compete effectively. Addressing these constraints requires coordinated efforts by government institutions, financial agencies, private enterprises, cooperatives, educational institutions, and rural communities. Future development should focus on modern processing technologies, improved transport and storage infrastructure, affordable institutional credit, entrepreneurship development, vocational training, digital marketing, stronger supply chains, and better access to domestic and international markets. Policies should particularly encourage participation by rural youth, women, small and marginal farmers, self-help groups, and local entrepreneurs.

In conclusion, agro-based industries possess substantial potential to reduce rural unemployment, supplement agricultural incomes, promote entrepreneurship, limit distress migration, and strengthen local economies. Their development can contribute to a transition from agriculture-dependent rural economies toward diversified and resilient economic structures. With appropriate investment, technological modernization, effective policy support, skill development, and sustainable resource management, agro-based industries can become a powerful instrument for inclusive rural transformation and long-term employment generation in India.

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