



# IJMRRS

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**TOPIC-**

**Leveraging India's Agricultural Sector for Employment Generation: A Strategic Analysis.**

**ABSTRACT:**

In the quest to generate 50 lakh jobs in India over the next two years, it's imperative to identify the most promising sector and craft a strategic plan. This article delves into the potential of India's agrarian landscape, often overlooked due to youth preferences and societal factors. By emphasizing agricultural exports and adopting innovative farming techniques like Israel's hydroponic aeroponics, we can unlock a game-changing employment source. These practices boost productivity, and crop yields, and create jobs in agrotechnology, precision farming, and export-oriented logistics. To succeed, we propose a holistic approach encompassing investments in agriculture education, vocational training, and reshaping the perception of farming as a prestigious career choice. This multifaceted strategy presents a viable path to achieve the ambitious goal of creating 50 lakh jobs while effectively combating unemployment in India.

**PROBLEM OF UNEMPLOYMENT IN INDIA-**

Despite the overall unemployment rate showing a reduction from 8.7 percent in 2017-18 to 6.6 percent in 2021-22, a concerning revelation emerged from the "State of Working India 2023" report by Azim Premji University's Centre for Sustainable Employment. The report exposed that in 2021-22, over 42 percent of India's graduates under the age of 25 were still grappling with unemployment. One thing that stands out is that economic growth has not guaranteed employment. With every percentage increase in GDP, the capacity to generate jobs has systematically declined. This data highlights a persistent challenge in India's labor market, where the issue of unemployment disproportionately affects the youth and those with higher education. This alarming statistic underscores a deep-seated issue within the Indian job market, where a significant portion of the country's educated youth is struggling to find suitable employment.

Despite the overall unemployment rate decrease, the gap between educational qualifications and job availability remains a substantial challenge. To address this disparity effectively, there is a critical need for innovative policies and concerted efforts from both public and private sectors.

As we seek innovative solutions to address unemployment among the educated youth, one promising avenue lies in reimagining agriculture as a viable career option. India's agriculture sector continued to be the leading industry in terms of employment in the financial year 2021, employing nearly 152 million people. In fact despite the COVID pandemic's negative impact agriculture was the only sector that showed an increase in its employment post-pandemic, while some of this can be attributed to many migrant workers returning to their villages during during enforced lockdown. The sector has nonetheless always maintained the highest employment record.

Still despite the potential of this sector students even from rural areas are reluctant to pursue a career in agriculture because they believe that their educational qualifications and socioeconomic aspirations extend beyond the traditional farming sector. They often hold degrees and have ambitions for improved living standards and a more diverse range of opportunities. The desire for government jobs, in particular, stems from the perceived job security, financial stability, and access to benefits that such positions offer, aligning with their broader socio-economic aspirations. This sentiment underscores the challenge of aligning rural youth's career choices with their educational achievements and societal expectations. Making agriculture more lucrative and profitable can help bridge this gap, and provide more compelling opportunities that match their ambitions.

When a BBC news reporter went to Prayagraj to understand the ambition and despair of those preparing for government exams, Sachin a student who is preparing for railways said "Agriculture is the source of our basic income but you can't earn a lot from it. It's just enough to keep the family going. If anyone thinks that farming can pay for your whole life and your children's education, that's impossible. That's why we want to leave this behind and find a government job.

#### **AGRICULTURE SECTOR IN INDIA-**

India is a country with an agrarian economy, with over 54% of the country's land classified as arable and the agriculture industry comprising of half of the labor market. The agriculture sector is one of the most important industries in the Indian economy.

While the sector's share of GDP has halved in the past 30 years to around 15 percent, it still employs around half of India's workforce and contributes to a significant portion of the fluctuations in India's GDP. India has the second largest area of arable land in the world and is a major producer of several agricultural products.

<b>Commodity</b>	<b>World Rank</b>	<b>Production Mt</b>
Buffalo milk	1	60.9
Bananas	1	26.2
Paddy rice	2	148.7

Cow milk	2	44.1
Wheat	2	78.6
Sugar cane	2	348.2
Fresh vegetables	2	31.4
Cotton lint	2	3.8
Potatoes	2	34.7

Source: Food and Agriculture Organization of the United Nations (FAO)

### [WORD RANKING OF INDIA PRODUCTION OF VARIOUS PRODUCTS]

Despite the productivity improvements in the Indian agricultural sector over recent decades, yields remain low by international standards and growth in yields has only been marginally higher than the world average. India's agricultural sector is still very important to the Indian economy, although its share of the economy has decreased over the past 50 years. India has made significant advances in agricultural production in recent decades.

### **UNUTILIZED POTENTIAL OF THE AGRICULTURAL SECTOR-**

Agriculture in India indeed holds substantial underutilized potential for job creation, and this potential is increasingly being recognized, Union Minister Nitin Gadkari's recent assertion about the use of drones in the farm sector underlines the transformative power of technology. Drones, by enhancing agricultural efficiency and productivity, offer a prime example of how innovation can unlock new employment opportunities. "Drone is related to agro and MSME, and drones alone can generate about 50 lakh jobs in the rural sector in one year. Besides, it will benefit farmers too," said Nitin Gadkari.

Working in agriculture is no longer confined to traditional roles like farming, laboring, or trading. Indian agriculture has come a long way since the Green Revolution of the 1960s, which introduced modern methods to boost crop yields significantly. Technology and the internet are probably the first things that come to mind when you think about the future of work for young people; not farming. This makes historic sense, as agriculture sheds labor when countries develop. Yet, technology and the internet are also opening employment opportunities in agriculture.

**So, can agriculture provide job opportunities for youth?**

### **SOME MODERN CAREERS IN THE AGRICULTURAL SECTOR-**

- 1. Agri-Entrepreneurship:** Agri-entrepreneurs are individuals who start their agricultural businesses. This could include ventures in organic farming, horticulture, or specialty crops. They're responsible for managing their agricultural operations, making decisions about what to plant or produce, and often seeking innovative ways to enhance productivity and sustainability. Even those already having lucrative jobs are starting their ventures seeing the potential of Indian agriculture in the near future. Kishore Indukari who is an IITian left his high-paying job in the US MNC to start his own dairy farm which is now generating annual revenue of 44cr.
- 2. Drone Pilot-**The current surge of energy in the drone industry has prompted an increase in jobs for experienced drone pilots which is only set to rise. Using fully compliant drone pilots registered with the Directorate General of Civil Aviation (DGCA) ensures farmers are working with professionals, experienced in the demands and challenges of agricultural mapping and surveying, and with a working knowledge of the latest agritech developments.
- 3. Agricultural Researcher:** Agricultural researchers focus on improving various aspects of agriculture. They develop and test new crop varieties, study pest and disease control methods, and explore sustainable farming practices to increase crop yields and overall productivity.
- 4. Agricultural Extension Officer:** These professionals act as intermediaries between the scientific knowledge developed by researchers and the practical needs of farmers. They educate farmers about modern farming techniques, provide guidance on crop management, and disseminate information about best practices. They propagate farming and development programs aimed at reaching marginalized farmers or those who have little access to information and extension services. They do this in collaboration with farming communities, helping them to help themselves to become more self-reliant and independent.
- 5. Agricultural Engineer:** Agricultural engineers design and develop farming equipment and machinery. They create efficient irrigation systems, and they may also work on improving methods for soil preparation and crop harvesting, all of which play a crucial role in enhancing agricultural productivity. Employment of agricultural engineers is projected to grow 6 percent from 2022 to 2032, faster than the average for all occupations. About 100 openings for agricultural engineers are projected each year, on average, over the decade. Many of those openings are expected to result from the need to replace workers who transfer to different occupations or exit the labor force, such as to retire.
- 6. Horticulturist:** Horticulturists are specialists in the cultivation of fruits, vegetables, and ornamental plants. They focus on plant breeding, propagation, and management techniques to ensure healthy and productive plants.

7. **Entomologist:** Entomologists are experts in the study of insects. In agriculture, they work on identifying and managing insect pests that can damage crops. Their research helps farmers adopt effective pest control strategies while minimizing environmental impact.
8. **Agri-Marketing Professional:** Professionals in agri-marketing handle the marketing and distribution of agricultural products. They work on creating market strategies, pricing, and managing the distribution channels to connect farmers with consumers. Agricultural marketing is important not just for increasing productivity and consumption, but also for accelerating economic growth. Its dynamic functions play a critical role in encouraging economic growth. As a result, it's been dubbed "the most powerful multiplier of agricultural development."
9. **Food Scientist:** Food scientists are responsible for developing and improving food products. In agriculture, they work on processes related to food processing, preservation, and packaging, aiming to enhance product quality and shelf life.
10. **Supply Chain Manager:** Supply chain managers oversee the movement of agricultural products from the farm to the market. They manage logistics, transportation, and distribution networks to ensure that products reach consumers in a timely and cost-efficient manner.
11. **Quality Control Inspector:** Quality control inspectors play a crucial role in ensuring that agricultural products meet the required quality standards for sale. They examine products for safety, quality, and adherence to regulatory requirements.

These diverse career options within agriculture offer various pathways for individuals with different interests and skill sets, making it a dynamic and vital sector for India's economy and livelihoods.

#### **The challenges that India's agriculture domain faces-**

1. **Lack of Access to Credit & Finance:** Small and marginal farmers often face difficulties in accessing credit and financial services due to their limited financial capacity and lack of collateral. The limited availability of affordable credit restricts their ability to invest in modern farming equipment, purchase quality seeds and fertilizers, and hire labor. This, in turn, hampers their productivity and ability to modernize their agricultural practices.
2. **Small Landholdings:** The average farmer in India typically owns small landholdings, often fragmented and uneconomical for modern farming practices. Small landholdings limit the scale at which farmers can adopt advanced technologies and practices. The inefficiency associated with small land parcels can make mechanization and economies of scale difficult to achieve, resulting in lower agricultural productivity.

- 3. Outdated Farming Practices:** Despite advances in agricultural technology and practices, a significant portion of Indian farmers still rely on traditional and outdated farming methods. This is due to limited access to information and agricultural education, as well as resistance to change. Outdated practices, such as monocropping and excessive chemical pesticide use, hinder the adoption of advanced and sustainable farming techniques.
- 4. Water Scarcity & Irrigation:** India's agriculture heavily relies on monsoon rains, making it vulnerable to droughts and inconsistent rainfall patterns. Access to irrigation facilities is limited, and the effective management of water resources is challenging, particularly in regions with scarce water availability. This dependence on rainfall can lead to water stress and crop losses, affecting agricultural productivity.
- 5. Soil Degradation & Land Erosion:** Improper land use practices, including inadequate crop rotation and over-reliance on chemical fertilizers and pesticides, contribute to soil degradation. Soil erosion is also a concern due to deforestation and improper land management. These factors result in reduced soil fertility and increased vulnerability to pests and diseases, further diminishing agricultural productivity.
- 6. Inadequate Agricultural Infrastructure:** Inadequate storage and cold chain facilities, along with poorly developed rural road networks, limit farmers' access to markets and affect the preservation of agricultural produce. Post-harvest losses, which result from these infrastructure gaps, not only add to the cost of production but also hinder farmers' ability to obtain fair prices for their crops.
- 7. Market Volatility & Price Fluctuations:** Farmers in India often face price volatility due to a lack of effective market linkages and the presence of intermediaries. The absence of timely and accurate price information leaves farmers vulnerable to price exploitation. Uncertainty in returns on their investments can lead to financial instability and reluctance to invest in agriculture.
- 8. Climate Change & Natural Disasters:** India is experiencing increasingly unpredictable weather patterns, including the effects of climate change and natural disasters such as floods, cyclones, and droughts. These events pose significant challenges to the agriculture industry. Crop losses, livestock mortality, and damage to agricultural infrastructure result from these extreme weather conditions, which affect farmers' livelihoods and agricultural productivity.
- 9. Limited Access to Technology & Research:** Many Indian farmers have limited access to agricultural extension services, modern technologies, and scientific research. This lack of access hinders the adoption of innovative and efficient farming practices. Farmers require improved dissemination of knowledge, training programs, and affordable access to technology solutions tailored to their specific agricultural needs.
- 10. Lack of Farmers' Empowerment:** Farmers' voices and representation in policy-making processes are often inadequate. The lack of farmers' empowerment

and limited involvement in shaping agricultural policies and initiatives can result in developing strategies that do not effectively address their specific challenges and needs.

**11. The unwillingness of Youth to Participate:** Many young individuals in India are increasingly reluctant to engage in traditional agriculture. They often view agriculture as physically demanding, lacking in prestige, and offering limited income opportunities compared to other sectors. The allure of urban jobs and the perception of farming as an arduous profession discourage youth from participating in agriculture, potentially contributing to an aging farming population and a shortage of labor in rural areas.

## **PRACTICAL STRATEGIES FOR JOB CREATION IN**

### **AGRICULTURE-**

#### **1.AGRIBUSINESS-**

Agribusiness generates a wide range of work opportunities by processing raw crops into the food products we buy in supermarkets. They hire people to handle activities such as product promotion, research to increase quality and efficiency, and ensuring that the finished food items satisfy high standards. Administrative positions are necessary for running a firm, dealing with paperwork, and managing cash. Some agribusinesses play an important role in assisting farmers by providing them with the resources they require for effective farming. Furthermore, certain agribusinesses allow people to visit farms, which contributes to the expansion of the tourist sector and provides work for those who cater to the needs of these visitors. As a result, the many roles within agribusiness contribute significantly to job creation.

#### **2.SUPPORT FOR AGRI ENTREPRENEUR-**

The success of cooperatives in India, particularly Gujarat Dairy Cooperative and Maharashtra's Sugar Cooperative are examples of what innovation and entrepreneurial thinking can do for the rural sector. Enterprising young entrepreneurs who have flooded urban India with startups in recent years have unfortunately neglected the rural economy. Or to put it this way, entrepreneurs who can transform the face of the rural economy have failed to emerge in rural India.

India today is emerging as a major startup hub with the urban sector giddy with new entrepreneurial energy. Unfortunately, the agricultural sector has remained out of ideas and out of mind.

The government has already initiated to offer attractive incentives including easy loans, insurance schemes, and tax benefits to farmers-cum-entrepreneurs.

Not only in developing alternative sources of employment, entrepreneurship can also help radicalize farming techniques and bring innovation to improve yields per hectare.

### **LEVERAGING DIGITAL AGRICULTURE-**



## **Vertical Farming and Hydroponics:**

Adopting vertical farming and hydroponic systems has enabled farmers to grow crops in controlled indoor environments, maximizing production in limited spaces. The maintenance and operation of these high-tech farming facilities have led to the creation of jobs for agricultural engineers, greenhouse technicians, and hydroponic specialists.

New farming tools like sensors, drones, and space pictures help farmers know more about their land and crops quickly. When farmers use this information, they can choose the best time to plant, the right way to use plant food, and when to pick their crops. This helps them grow more food. Because of this, more people are needed to look at this information and help farmers, which means more jobs are created. For example, there are more jobs for people who are good at understanding data, for those who know a lot about plants, and for people who can fix and use new farming tools. Integration of vertical farming and hydroponic systems has not only revolutionized agricultural practices but has also been instrumental in addressing the persistent challenges associated with small landholdings.

## **ACTION PLAN FOR IMPLEMENTATION-**

### **Agriculture Education and Awareness-**

Agriculture, despite being one of the largest sectors, often receives the least recognition. Therefore, introducing a subject on the farming sector and its untapped potential, along with guidance on establishing a successful career within it, is crucial within the Indian education system. This initiative can foster a comprehensive shift in perspective, highlighting the diversity and opportunities available within the field of farming.

### **Developing educational exhibits for public events such as fairs, festivals, and store promotions-**

Exhibits can focus on all aspects of animal and crop production and should contain key messages. With today's technology, videos and pictures can be used to take the public on a virtual tour of a farm or through the phases of safe food production. To draw in younger crowds, agricultural awareness events are embracing technology and entertainment.

They offer virtual farm tours, interactive farming games, and collaborations with social media influencers. With live music, art installations, and hands-on experiences, these exhibits not only educate about sustainable farming but also inspire a more eco-conscious lifestyle.

## **PUBLIC-PRIVATE PARTNERSHIP-**

A report published by the Food and Agriculture Organization (FAO) of the United Nations says that public-private partnerships can significantly contribute to sustainable agricultural development in developing countries.

Though such kinds of tie-ups are common in other sectors such as health, education, and infrastructure, it is somewhat new to agriculture.

Public-private partnerships (PPPs) in agriculture have the potential to modernize the sector and provide numerous benefits to smallholder farmers.

in several cases agri-PPPs helped to increase on-farm productivity for smallholder farmers through the increased adoption of new technologies, improved market access through closer relationships with agribusiness firms, reduction in post-harvest losses, and guaranteed markets for farmers through contract-farming agreements. Pakistan developed a drought-resistant wheat variety adapted to suit a specific geographical area where food security was a problem for the rural poor by working with a private company, the public research institute was able to commercialise the seed developed and ensure that farmers had access to the seed

Strategies such as improving the affordability and access to agricultural insurance schemes for farmers as part of the PPP design, ensuring responsible contract farming agreements, and providing business management training to farmer organizations and small and medium enterprises so that they can negotiate with agribusiness firms as more equitable partners are vital in ensuring successful PPPs.

### **CURBING IRRIGATION PROBLEMS-**

The availability of water for irrigation is another burning issue. In India, agricultural activities consume more than 80 percent of available fresh water. There is also an excessive reliance on groundwater and seasonal rains. The need to produce more food per drop of water requires water-efficient irrigation methods instead of conventional flood irrigation. Promoting the widespread adoption of water-efficient technologies such as drip irrigation systems, rainwater harvesting, and micro-irrigation can significantly optimize water usage and mitigate the adverse effects of water scarcity. Secondly, By implementing advanced water monitoring technologies, such as IoT-enabled sensors and satellite imagery, authorities can track water usage patterns in real-time, identify any instances of misuse or overuse, and assess the overall efficiency of water distribution systems

### **DIVERSIFICATION OF AGRICULTURE-**

Farmers play a vital role in providing food for everyone, but it's important for them to think about growing more than just the usual crops like wheat and rice. They can also think about planting crops that can be used to make things like biofuels or other sources of energy. This can be a smart idea because even if they work really hard and produce a lot of the usual crops, they might not make much more money because the prices for those crops often stay the same. So, if they also grow different kinds of crops like fruits and vegetables or raise animals like cows or fish, they might be able to sell them for more money. This can help them earn more and have a better life for themselves and their families.

## **AGRIBUSINESS TRAINING-**

**Farmer organizations in emerging markets must become more professional and more productive. A well-managed farmer organization can attract finance and customers, which means it can sell more and do more for its members and for farming communities.**

The Agribusiness Leadership Program prepares farmer organizations to do exactly that. It integrates classroom training, and coaching in a 6- to 24-month program designed to measurably improve the management skills and professionalism of farmer organizations. The face-to-face program is delivered in the local language and is customized for farmer organizations of varying sizes, crop sectors, and education levels. These organizations can range from small, informal producer groups to large, registered farmer cooperatives. The program will expand to include businesses that work with smallholder farmers, including collection agents and input retailers.

## **RURAL-URBAN LINKAGE-**

Improve linkages between urban centers and smallholder farmers and their organizations. Enhancing linkages between smallholders and market opportunities across agri-food value chains, creating decent employment in them, and fostering shared sustainable arrangements between urban and rural groups are necessary preconditions to create inclusive and sustainable rural-urban linkages.

The increasing demand for high-value primary and processed products in urban areas can offer multiple employment opportunities for rural youth, as long as rural-urban linkages that reduce transaction costs of food supply are established. Additional jobs for rural youth can be created in aggregation, processing, distribution, trade, and rural services.

Integrate decent work aspects-

Policies should improve the working conditions of young rural women and men employed in agri-food value chains by extending social protection, workers' rights, occupational safety and health, and rural worker groups.

## **INVEST IN HARD AND SOFT INFRASTRUCTURE-**

Access to energy, roads, communications, and water infrastructure is essential, as well as facilitating the flow of goods, labor, money, and innovation. Rural transport provides assurance for the supply of agricultural inputs and facilitates the delivery of the farm outputs to the markets. Transport increases the production and productivity of agriculture by providing facilities for improved seed, manure, fertilizers, marketing, storage, financing, machinery tools, and technical advice. Wretched condition of roads especially in rural areas is one of the major reasons for backwardness in agriculture, although the situation of infrastructure is improving dramatically day by day in rural areas of the country.

## CONCLUSION-

In conclusion, the agricultural sector in India holds significant potential for job creation and economic growth. By addressing the challenges faced by the sector and implementing practical strategies, India can harness the untapped potential of its vast agricultural resources. Initiatives such as promoting agribusiness, supporting agri-entrepreneurs, leveraging digital agriculture, and enhancing rural-urban linkages can play a crucial role in unlocking employment opportunities within the sector.

Efforts to improve irrigation infrastructure, promote crop diversification, and invest in both hard and soft agricultural infrastructure are essential for sustainable agricultural development. The focus should also be on empowering farmers through education, training, and access to technology, enabling them to adopt modern and sustainable farming practices. Moreover, public-private partnerships can facilitate the modernization and growth of the agricultural sector, leading to increased productivity and improved market access.

It is imperative to encourage the participation of the youth in agriculture by showcasing the diverse and modern career options available in the sector. By addressing the challenges and embracing innovation, India can position its agricultural sector as a dynamic and attractive industry, providing employment opportunities and contributing significantly to the country's economic development and food security.

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