

Agriculture A Growing Sector Sector: Essential for Economic Growth in Indian Economy (Challenges, Problems and Remedies)

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Abstract

Agriculture sector also known as primary sector is essential for economic growth in any economy including India. It has emerged as the essential-growing sector in the global economy since independence. It was seen that the highest percentage of household and land holdings were found in marginal category with 75.41 percent and 29.75 per cent followed by small category. Only 0.24 per cent of household has a land holding of 5.81 per cent under large category. As far as the comparative yield of the selected crops such as Rice, Wheat, Corn, Coarse grain and Soybean are concerned, the highest yield in India was found in Rice followed by Wheat and Corn as per Foreign Agricultural Service, USDA. Slow agricultural growth is a concern for policymakers as some two-thirds of India's people depend on rural employment for a living. Current agricultural practices are neither economically nor environmentally sustainable and India's yields for many agricultural commodities are low. Poorly maintained irrigation systems and almost universal lack of good extension services are among the factors responsible. Farmers' access to markets is hampered by poor roads, rudimentary market infrastructure, and excessive regulation. Various government and non-governmental schemes have been launched to accelerate the agricultural growth in India. Various recommendations have been put forward to maintain and accelerate the growth & contributions of this sector & to develop it as a true engine of economic growth.

Keywords: Agriculture, Commodities, Farmers, Market, Infrastructure, Regulation

Introduction

India is the largest agricultural powerhouse worldwide and the leading producer of spices, pulses, and milk. Not only that, our country has the largest area that is used to cultivate cotton, wheat, and rice. Agricultural held almost 75 per cent share in India's GDP a few decades ago (World Bank, 2020). To this day, the share has gone down to around 18 per cent. However, agriculture continues to be the source of livelihood for about 50 per cent of the working population, three-quarters of which is based in the rural parts of India. In a nutshell, agricultural is vast industry and has an impact on every citizen of the country, either directly or indirectly (Sheshan, 2020). Like any other sector, agriculture too has its own set of challenges, some of which are very critical and impeding. Let's take a look at some of the major problems that Indian farmers face and their possible solutions.

Fragmented Land Holdings: The net area under cultivation is close to 141 million hectares. However, its immensity diminishes with the fact that a vast number of land holdings are fragmented to an extent of being rendered economically unviable. This is a prime reason that agriculture instruments in India cannot be used effectively. Division of land by the virtue of inheritance has given rise to the problem. Irrigation and mechanized farming is next to impossible on such fragmented farms.

Consolidation of fragmented farm lands at the grass-root level under the supervision of the government is the best solution. Consolidation can be done via co-operative farming, corporate farming, and collaborative farming. The use of sophisticated farm machinery and equipment's will help the marginal farmers to increase the agricultural productivity.

Supply Channel Bottlenecks: Indian agricultural industry is riddled with bottlenecks at every step. The supply channel is inefficient because of the greedy middlemen involved in the marketing process. It compels the farmers to make distress sale. They have to sell their produce at whatever prices they are offered, which ultimately diminishes their income.

To solve the issue of supply chain bottlenecks, the government has started regulating the market. Competitive buying, elimination of malpractices, use to standardized weights and measures, enhanced dispute settlement system is the essence of the strategy.

Lack of Storage Facilities: The lack of proper storage facilities results in degradation of the quality of the produce. This, in turn, affects the volume of exports causing loss of potential income. Not to mention wastage of the produce. Estimates say that 9.3 per cent of the produce gets wasted because of improper storage and maintenance.

To solve the issue, there is an ongoing effort initiated by the Food Corporation of India, the State Warehousing Corporation and the Central Warehousing Corporation to expand the storage facilities and establish a buffer stock for contingencies.

Lack of Sufficient Irrigation Facilities: After China, India has the largest cultivated area that has irrigation facility. However, it covers only one-third of the total cultivated area. A major proportion of farming activities still depends on the monsoon. The irregularities of the monsoon can destroy the crops and cause hefty losses to the farmers.

To tackle the problem of dependence on monsoon, the government has been expanding the implementation of the irrigation facility through the Prime Minister Krishi Sinchai Yojana.

Over Dependence on Traditional Crops: As mentioned before, India produces rice and wheat in abundance. Some regions can easily adapt to facilitate the growth of new crops that can yield a higher quantity of produce. Farmers are resistant or hesitant to give it a try. Endorsing associations of commodity-based farmers and spreading awareness is a very effective way to overcome the over-dependence on traditional crops. The seed banks are playing a crucial role in helping farmers switch to other varieties of crops to facilitate a smooth transition.

Farmers Distress and Rise in Farmer Suicides

The National Commission on Farmers, chaired by Prof. M. S. Swaminathan, submitted five reports through the period December 2004-October 2006. Following from the first four, the final report focused on causes of farmer distresses and the rise in farmer suicides, and recommends addressing them through a holistic national policy for farmers (Yogesh Joshi, 2020)). The findings and recommendations encompass issues of access to resources and social security entitlements. This summary is a quick reference point highlighting the key findings and policy recommendations under

land reforms, irrigation, credit and insurance, food security, employment, productivity of agriculture and farmer competitiveness (Swaminathan, 2016).

Causes for Farmers’ Distress: Agrarian distress has led farmers to commit suicide in recent years. The major causes of the agrarian crisis are: unfinished agenda in land reform, quantity and quality of water, technology fatigue, access, adequacy and timeliness of institutional credit, and opportunities for assured and remunerative marketing (Yogesh Joshi, 020). Adverse meteorological factors add to these problems.

Farmers need to have assured access and control over basic resources, which include land, water, bio-resources, credit and insurance, technology and knowledge management, and markets. The NCF recommends that “Agriculture” be inserted in the Concurrent List of the Constitution.

Land Reforms

Land reforms are necessary to address the basic issue of access to land for both crops and livestock. Land holdings inequality is reflected in land ownership. It was observed from the Table 4 that the highest percent of households are seen in the marginal ownership with 75.41 per cent increase in 2012-13 as compared to that of 52.98 per cent in 1971-72. Till 2003 the maximum percentage of land holding was found in medium category, however, after four decades, the marginal category has become the maximum percent of land hold during 2013.

Table 1: Distribution of Land

Land Holding	Percent of House Holds	Percent of Land Hold
Land less	7.41	0.01
Marginal holdings (1.00-2.49 acres)	75.41	29.75
Small holdings (2.50-4.99 acres)	10.00	23.53
semi-medium (2.000-4.000)	5.01	22.07
Medium holdings (5-14.99 acres)	1.93	18.83
Large holdings (15 acres + above)	0.24	5.81
TOTAL	100.0	100.0

Source: Data for 2012-13 NSS Report-491

Some of the Main Recommendations Include:

- Distribute ceiling-surplus and waste lands;
- Prevent diversion of prime agricultural land and forest to corporate sector for non-agricultural purposes.
- Ensure grazing rights and seasonal access to forests to tribals and pastoralists, and access to common property resources.
- Establish a National Land Use Advisory Service, which would have the capacity to link land use decisions with ecological meteorological and marketing factors on a location and season specific basis.
- Set up a mechanism to regulate the sale of agricultural land, based on quantum of land, nature of proposed use and category of buyer.

Irrigation

Out of the gross sown area of 192 million ha, rainfed agriculture contributes to 60 per cent of the gross cropped area and 45 per cent of the total agricultural output. The report recommends:

- A comprehensive set of reforms to enable farmers to have sustained and equitable access to water.
- Increase water supply through rainwater harvesting and recharge of the aquifer should become mandatory. “Million Wells Recharge” Programme, specifically targeted at private wells should be launched.
- Substantial increase in investment in irrigation sector under the 11th Five Year Plan apportioned between large surface water systems; minor irrigation and new schemes for groundwater recharge.

Productivity of Agriculture

Apart from the size of holding, the productivity levels primarily determine the income of the farmers. However, the per unit area productivity of Indian agriculture is much lower than other major crop producing countries.

Table 2: Comparative Yield of Select Crops in Various Countries (MT/ha)

Country	Crops				
	Rice	Wheat	Coarse Grain	Corn	Soybean
India	3.87	3.20	1.97	3.12	0.80
China	6.92	5.48	5.95	6.11	1.84
United States	8.41	3.12	10.46	11.08	3.31
Canada	-	3.34	5.54	10.02	2.63
Mexico	-	5.24	3.66	3.77	1.65

Source: Foreign Agricultural Service/USDA 24 May 2019

Office of Global Analysis

In order to achieve higher growth in productivity in agriculture, the NCF recommends:

- Substantial increase in public investment in agriculture related infrastructure particularly in irrigation, drainage, land development, water conservation, research development and road connectivity etc.
- A national network of advanced soil testing laboratories with facilities for detection of micronutrient deficiencies.
- Promotion of conservation farming, which will help farm families to conserve and improve soil health, water quantity and quality and biodiversity.

Credit and Insurance

Timely and adequate supply of credit is a basic requirement of small farm families.

The NCF suggests:

- Expand the outreach of the formal credit system to reach the really poor and needy.
- Reduce rate of interest for crop loans to 4 per cent simple, with government support.
- Moratorium on debt recovery, including loans from non- institutional sources, and waiver of

interest on loans in distress hotspots and during calamities, till capability is restored.

- Establish an Agriculture Risk Fund to provide relief to farmers in the aftermath of successive natural calamities.
- Issue Kisan Credit Cards to women farmers, with joint pattas as collateral.
- Develop an integrated credit-cum-crop-livestock-human health insurance package.
- Expand crop insurance cover to cover the entire country and all crops, with reduced premiums and create a Rural Insurance Development Fund to take up development work for spreading rural insurance.
- Promote sustainable livelihoods for the poor by improving (i) Financial services (ii) Infrastructure (iii) Investments in human development, agriculture and business development services (including productivity enhancement, local value addition, and alternate market linkages) and (iv) Institutional development services (forming and strengthening producers' organizations such as self-help groups and water user associations).

Food Security

The Mid-term appraisal of the 10th Plan revealed that India is lagging behind in achieving the Millennium Development Goals of halving hunger by 2015. Therefore, the decline in per capita food grain availability and its unequal distribution have serious implications for food security in both rural and urban areas (SET, 2020).

The proportion of households below the poverty line was 28 per cent in 2004-05 (close to 300 million persons). However, in 1999-2000, the percentage of population consuming diets providing less than 2400 kcal (underlines definition of below poverty line) per capita per day was almost 77 per cent of the rural population. Several studies have shown that the poverty is concentrated and food deprivation is acute in predominantly rural areas with limited resources such as rain-fed agricultural areas.

The Report Recommends

- Implement a universal public distribution system. The NCF pointed out that the total subsidy required for this would be one per cent of the Gross Domestic Product.
- Reorganize the delivery of nutrition support programmes on a life-cycle basis with the participation of Panchayats and local bodies.
- Eliminate micronutrient deficiency induced hidden hunger through an integrated food cum fortification approach.
- Promote the establishment of Community Food and Water Banks operated by Women Self-help Groups (SHG), based on the principle 'Store Grain and Water everywhere'.
- Help small and marginal farmers to improve the productivity, quality and profitability of farm enterprises and organize a Rural Non-Farm Livelihood Initiative.
- Formulate a National Food Guarantee Act continuing the useful features of the Food for Work and Employment Guarantee programmes. By increasing demand for food grains as a result of increased consumption by the poor, the economic conditions essential for further agricultural progress can be created.

Prevention of Farmer Suicide

In the last few years, a large number of farmers have committed suicide. Cases of suicides have been reported from states such as Andhra Pradesh, Karnataka, Maharashtra, Kerala, Punjab, Rajasthan,

Orissa and Madhya Pradesh. The NCF has underlined the need to address the farmer suicide problem on a priority basis.

Some of measures suggested include:

- Provide affordable health insurance and revitalize primary healthcare centres. The National Rural Health Mission should be extended to suicide hotspot locations on priority basis.
- Set up State level Farmers' Commission with representation of farmers for ensuring dynamic government response to farmers' problems.
- Restructure microfinance policies to serve as Livelihood Finance, i.e., credit coupled with support services in the areas of technology, management and markets.
- Cover all crops by crop insurance with the village and not block
- as the unit for assessment.
- Provide for a Social Security net with provision for old age support
- and health insurance.
- Promote aquifer recharge and rain water conservation. Decentralize water use planning and every village should aim at Jal Swaraj with Gram Sabhas serving as Pani Panchayats.
- Ensure availability of quality seed and other inputs at affordable
- costs and at the right time and place.
- Recommend low risk and low-cost technologies which can help to provide maximum income to farmers because they cannot cope with the shock of crop failure, particularly those associated with high-cost technologies like Bt cotton.
- Need for focused Market Intervention Schemes (MIS) in the case of life-saving crops such as cumin in arid areas. Have a Price Stabilisation Fund in place to protect the farmers from price fluctuations.
- Need swift action on import duties to protect farmers from
- international price.
- Set up Village Knowledge Centres (VKCs) or Gyan Chaupals in the farmers' distress hotspots. These can provide dynamic and demand driven information on all aspects of agricultural and non-farm livelihoods and also serve as guidance centres.
- Public awareness campaigns to make people identify early signs
- of suicidal behavior.

Competitiveness of Farmers

It is imperative to raise the agricultural competitiveness of farmers with small land holdings. Productivity improvement to increase the marketable surplus must be linked to assured and remunerative marketing opportunities.

The measures suggested by NCF include:

- Promotion of commodity-based farmers' organizations such as Small Cotton Farmers' Estates to combine decentralized production with centralized services such as post-harvest management, value addition and marketing, for leveraging institutional support and facilitating direct farmer-consumer linkage.
- Improvement in implementation of Minimum Support Price (MSP). Arrangements for MSP need to be put in place for crops other than paddy and wheat. Also, millets and other nutritious

cereals should be permanently included in the PDS.

- MSP should be at least 50 per cent more than the weighted average
- cost of production.
- Availability of data about spot and future prices of commodities through the Multi Commodity Exchange (MCD) and the NCDEX and the APMC electronic networks covering 93 commodities through 6000 terminals and 430 towns and cities.
- State Agriculture Produce Marketing Committee Acts [APMC Acts] relating to marketing, storage and processing of agriculture produce need to shift to one that promotes grading, branding, packaging and development of domestic and international markets for local produce, and move towards a Single Indian Market.

Employment

Structural change in the workforce is taking place in India albeit slowly. In 1961, the percentage of the workforce in agriculture was

75.9 per cent. While the number decreased to 59.9 per cent in 1999- 2000. But agriculture still provides the bulk of employment in the rural areas.

The overall employment strategy in India must seek to achieve two things. First, create productive employment opportunities and second to improve the ‘quality’ of employment in several sectors such that real wages rise through improved productivity. The measures to do so include:

- Accelerating the rate of growth of the economy;
- Emphasizing on relatively more labour-intensive sectors and inducing a faster growth of these sectors; and
- Improving the functioning of the labour markets through such modification as may be necessary without eroding the core labour standards.
- Encourage non-farm employment opportunities by developing particular sectors and sub-sectors where demand for the product or services is growing namely: (i) trade, (ii) restaurants and hotels, (iii) transport, (iv) construction, (v) repairs and (vi) certain services.
- The “net take home income” of farmers should be comparable to
- those of civil servants.

Bio-resources

Rural people in India depend on a wide range of bio-resources for their nutrition and livelihood security. The report recommends:

- Preserving traditional rights of access to biodiversity, which include access to non-timber forest products including medicinal plants, gums and resins, oil yielding plants and beneficial micro-organisms;
- Conserving, enhancing and improving crops and farm animals as well as fish stocks through breeding;
- Encouraging community-based breed conservation (i.e. conservation through use);
- Allowing export of indigenous breeds and import of suitable

breeds to increase productivity of nondescript animals.

Increase in the Farmers Income

Past strategy for development of the agriculture sector in India has focused primarily on raising agricultural output and improving food security. The net result has been a 45 per cent increase in per person food production, which has made India not only food self-sufficient at aggregate level, but also a net food exporting country.

The strategy did not explicitly recognize the need to raise farmers' income and did not mention any direct measure to promote farmers welfare. The net result has been that farmers income remained low, which is evident from the incidence of poverty among farm households.

Low level of absolute income as well as large and deteriorating disparity between income of a farmer and non-agricultural worker constitute an important reason for the emergence of agrarian distress in the country during 1990s, which turned quite serious in some years. The country also witnessed a sharp increase in the number of farmers suicides during 1995 to 2004-losses from farming, shocks in farm income and low farm income are identified as the important factors for this. The low and highly fluctuating farm income is causing detrimental effect on the interest in farming and farm investments, and is also forcing more and more cultivators, particularly younger age group, to leave farming. This can cause serious adverse effect on the future of agriculture in the country.

It is apparent that income earned by a farmer from agriculture is crucial to address agrarian distress (Chand, 2016) and promote farmers welfare. In this background, the goal set to double farmers' income by 2022-23 is central to promote farmers welfare, reduce agrarian distress and bring parity between income of farmers and those working in non-agricultural professions.

The Concept and Timeframe

Clarity on the following points is important to assess the possibility of doubling the income of the farmers. The substantive points are:

1. what is the period and targeted year for doubling the farm income;
2. what is to be doubled, is it output, value added or income earned by farmers from agricultural activities;
3. whether nominal income is to be doubled or real income is to be doubled; and
4. Whether the targeted income includes only income derived from agricultural activities or would it also include income of farmers from other sources.

It is obvious that the targeted year to double the current income of the farmers or income for the agricultural year 2015-16 is by agricultural year 2022-23, which is seven years away from the base year 2015-16. And, if anything is to be doubled by the year 2022-23, it will require an annual growth rate of 10.4 per cent.

Again, it is important to clarify what is sought to be doubled. Is it the income of farmers, or the output or the income of the sector or the value added or GDP of agriculture sector? If technology, input prices, wages and labour use could result in per unit cost savings then farmers' income would rise at a much higher rate than the output. In nominal terms, the output became 2.65 times while farmers' income tripled in the seven years period. Therefore, doubling of farmers' income should not be viewed as same as doubling of farm output.

It is obvious that if inflation in agricultural prices is high, farmer's income in nominal terms will double in a much shorter period. In a situation where non-agricultural prices do not rise, or, rise at a very small rate, the growth in farmers' income at real prices tends to be almost the same as in nominal prices. The government's intention seems to be to double the income of farmers from farming in real terms.

It is pertinent to mention that the latest data on number of cultivators is available only up to the year 2011-12. Therefore, while calculating per cultivator income, it is assumed that farm workers would continue their withdrawal from agriculture at the rate observed during 2004-05 to 2011-12. Presently, per cultivator income has been estimated as Rs 1,20,193 at current market prices.

Sources of Growth in Farmers' Income

Doubling real income of farmers till 2022-23 over the base year of 2015-16, requires annual growth of 10.41 per cent in farmer's income. This implies that the on-going and previously achieved rate of growth in farm income has to be sharply accelerated. Therefore, strong measures will be needed to harness all possible sources of growth in farmers' income within as well as outside agriculture sector.

The major sources of growth operating within agriculture sector are:

1. improvement in productivity
2. resource use efficiency or saving in cost of production
3. increase in cropping intensity
4. diversification towards high value crops

The sources outside agriculture include:

1. shifting cultivators from farm to non-farm occupations, and
2. Improvement in terms of trade for farmers or real prices received by farmers.

Strategy for Improving Farmers' Income

The sources of growth in output and income can be put in four categories.

1. Development initiatives including infrastructure
2. Technology
3. Policies and
4. Institutional mechanisms

Roadmap and Action Plan

The quantitative framework for doubling farmer's income has identified seven sources of growth. These are:

1. Increase in productivity of crops
2. Increase in production of livestock
3. Improvement in efficiency of input use (cost saving)
4. Increase in crop intensity
5. Diversification towards high value crops
6. Improved price realization by farmers
7. Shift of cultivators to non-farm jobs

Conclusion and Recommendations

Agriculture makes the highest contribution to India's GDP. Agriculture contributes almost about 18 percent to the country's GDP. It has been seen in the last few years that the input of the agriculture sector has been declining, but it is still the biggest contributor. Agriculture occupies a prominent position in Indian policy-making not only because of its contribution to GDP but also because of the large proportion of the population that is dependent on the sector for its livelihood. However, it is clear that India's agricultural sector has made huge strides in developing its potential. The green revolution massively increased the production of vital food grains and introduced technological innovations

into agriculture. This progress is manifested in India's net trade position. Where once India had to depend on imports to feed its people, since 1990 it is a net exporter of agri-food products. Its agriculture is large and diverse and its sheer size means that even slight changes in its trade have significant effects on world agricultural markets. Training the farmers and educating them appropriately to change their mindset and reorienting them to take up new activities or adopt foreign technology is of utmost importance. In this context, it is necessary to involve non-governmental organizations in training and mobilizing the rural poor to face the challenge of liberalization. Also, with domestic economic reforms, more care needs to be exercised to draw up state-specific liberalization measures to maximize their benefits. Lastly, in the implementation of these reforms for successful globalization, one crucial element, not entirely within control is the need for good governance and stability in the political and economic environment.

The low level of farmer's income and year to year fluctuations in it are a major source of agrarian distress. This distress is spreading and getting severe over time impacting almost half of the population of the country that is dependent on farming for livelihood. Persistent low level of farmer's income can also cause serious adverse effect on the future of agriculture in the country. To secure future of agriculture and to improve livelihood of half of India's population, adequate attention needs to be given to improve the welfare of farmers and raise agricultural income. Achieving this goal will reduce persistent disparity between farm and non-farm income, alleviate agrarian distress, promote inclusive growth and infuse dynamism in the agriculture sector. Respectable income in farm sector will also attract

youth towards farming profession and ease the pressure on non-farm jobs, which are not growing as per the expectations.

Doubling farmer's income by 2022 is quite challenging but it is needed and is attainable. Three pronged strategy focused on (i) development initiatives, (ii) technology and (iii) policy reforms in agriculture is needed to double farmer's income.

- The rates of increase in sources underlying growth in output need to be accelerated by 33 per cent to meet the goal.
- The country need to increase use of quality seed, fertilizer and power supply to agriculture by 12.8, 4.4 and 7.6 per cent every year.
- Area under irrigation has to be expanded by 1.78 million hectare and area under double cropping should be increased by 1.85 million hectare every year.
- Besides, area under fruits and vegetables is required to increase by 5 per cent each year.
- In the case of livestock, improvement in herd quality, better feed, increase in artificial insemination, reduction in calving interval and lowering age at first calving are the potential sources of growth.

Research institutes should come with technological breakthroughs for shifting production frontiers and raising efficiency in use of inputs. Evidence is growing about scope of agronomic practices like precision farming to raise production and income of farmers substantially. Similarly, modern machinery such as laser land leveller, precision seeder and planter, and practices like SRI (system of rice intensification), direct seeded rice, zero tillage, raised bed plantation and ridge plantation allow technically highly efficient farming. However, these technologies developed by the public sector have very poor marketability. They require strong extension for the adoption by farmers. R&D institutions should also include in their packages grassroots level innovations and traditional practices which are resilient, Sustainable and income enhancing.

ICAR and SAUs should develop models of farming system for different types of socioeconomic and bio physical settings combining all their technologies in a package with focus on farm income. This would involve combining technology and best practices covering production, protection and post-harvest value addition for each sub systems with other sub systems like crop sequences, crop mix, livestock, horticulture, forestry. Such shift requires interdisciplinary approach to develop on knowledge of all disciplines.

About one third of the increase in farmers' income is easily attainable through better price realization, efficient post-harvest management, competitive value chains and adoption of allied activities. This requires comprehensive reforms in market, land lease and raising of trees on private land. Agriculture has suffered due to absence of modern capital and modern knowledge. There is a need to liberalize agriculture to attract responsible private investments in production and market. Similarly, FPOs and FPCs can play big role in promoting small farm business. Ensuring MSP alone for farm produce through competitive market or government intervention will result in sizeable increase in farmers' income in many states.

Most of the development initiatives and policies for agriculture are implemented by the States. States invest much more than the outlay by the Centre on many development activities, like irrigation. Progress of various reforms related to market and land lease are also State subjects. Therefore, it is essential to mobilize States and UTs to own and achieve the goal of doubling farmers' income. If concerted and well-coordinated efforts are made by the Centre and all the States and UTs, the Country can achieve the goal of doubling farmers' income by the year 2022.

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