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ISSUES AND CHALLENGES OF INDIAN AGRICULTURE

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Abstract

Indian economy is a village economy, which is economy of cultivators, village handicraftsman, and of the agricultural labourer. Since independence, India has developed from the stage of net importing to net exporting of foodgrains, and still heavily depends upon agriculture. Green revolution in mid 1960's has the credit to change situation of Indian agriculture. But today agriculture in India is facing a crisis. This is due to the problems that Indian agriculture sector could not tackle over the time. This paper explains these problems and identifies the priority areas which should be taken under dire care to get rid of the agricultural crisis.

Keywords: Mono-Cropping, Farm Size, Diversification, productivity.

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INTRODUCTION

The history of Agriculture in India dates back to Indus Valley Civilization Era and even before that in some parts of Southern India. Today, India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and fisheries accounted for 13.7% of the GDP (gross domestic product) in 2013, about 50% of the workforce.[1] The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India.

India exported $39 billion worth of agricultural products in 2013, making it the seventh largest agricultural exporter worldwide, and the sixth largest net exporter. This represents explosive growth, as in 2004 net export were about $5 billion. India is the fastest growing exporter of agricultural products over a 10-year period, its $39 billion of net exports is more than double the combined exports of the European Union (EU-28). It has become one of the world's largest supplier of rice, cotton, sugar and wheat. India exported around 2 million metric tonnes of wheat and 2.1 million metric tonnes of rice in 2011 to Africa, Nepal, Bangladesh and other regions around the world.[2]

India has shown a steady average nationwide annual increase in the kilograms produced per hectare for some agricultural items, over the last 60 years. These gains have come mainly from India's green revolution, improving road and power generation infrastructure, knowledge of gains and reforms. Despite these recent accomplishments, agriculture has the potential for major productivity and total output gains, because crop yields in India are still just 30% to 60% of the best sustainable crop yields achievable in the farms of developed and other developing countries. Additionally, losses after harvest due to poor infrastructure and unorganized retail cause India to experience some of the highest food losses in the world.

PROBLEMS FACED BY THE AGRICULTURE SECTOR

A 2003 analysis of India's agricultural growth from 1970 to 2001 by the Food and Agriculture Organisation identified systemic problems in Indian agriculture. For food staples, the annual growth rate in production during the six-year segments 1970-76, 1976–82, 1982–88, 1988–1994,

1994-2000 were found to be respectively 2.5, 2.5, 3.0, 2.6, and 1.8% per annum. Corresponding analyses for the index of total agricultural production show a similar pattern, with the growth rate for 1994-2000 attaining only 1.5% per annum. 3 Some of the major problems have been discussed as follows.

Small and Fragmented Land Holding

Nearly 80% of the 140 million farming families hold less than 2 acres of land. Large land holdings enable the farmer to implement modern agricultural techniques and boost productivity. Small land holdings restrict the farmer to use traditional methods of farming and limit productivity. The average size of holdings was 2.28 hectares in 1970-71 which was reduced to 1.82 hectares in 1980-81 and 1.50 hectares in 1995-96, further it reduced to 1.32 hectares in 2000-01. The size of the holdings will further decrease with the infinite Sub-division of the land holdings. The problem of small and fragmented holdings is more serious in densely populated and intensively cultivated states like Kerala, West Bengal, Bihar and eastern part of Uttar Pradesh where the average size of land holdings is less than one hectare and in certain parts it is less than even 0.5 hectare. Rajasthan with vast sandy stretches and Nagaland with the prevailing 'Jhoom' (shifting agriculture) have larger average sized holdings of 4 and 7.15 hectares respectively. States having high percentage of net sown area like Punjab, Haryana, Maharashtra, Gujarat, Karnataka and Madhya Pradesh have holding size above the national average. Further it is shocking to note that a large proportion of 59 per cent holdings in 1990- 91 were marginal (below 1 hectare) accounting for 14.9 per cent of the total operated area. Another 19 per cent were small holdings (1-2 hectare) taking up 17.3 per cent of the total operated area. In 2000-01 percentage of marginal farmers increased to 63 percent of the total farmers.[4]

As land holdings are small, more people invariably work on the farms in the rural areas and coupled with the obsolete technology, farm incomes come down.

Shortage of Irrigation Facilities

Although India is the second largest irrigated country of the world after China, only one-third of the cropped area is under irrigation. Irrigation is the most important agricultural input in a tropical monsoon country like India where rainfall is uncertain, unreliable and erratic India

cannot achieve sustained progress in agriculture unless and until more than half of the cropped area is brought under assured irrigation. This is testified by the success story of agricultural progress in Punjab Haryana and western part of Uttar Pradesh where irrigation facilities are better. Large tracts still await irrigation to boost the agricultural output.

However, care must be taken to safeguard against ill effects of over irrigation especially in areas irrigated by canals. Large tracts in Punjab and Haryana have been rendered useless (areas affected by salinity, alkalinity and water-logging), due to faulty irrigation. In the Indira Gandhi Canal command area also intensive irrigation has led to sharp rise in sub-soil water level, leading to water-logging, soil salinity and alkalinity.

Manures, Fertilizers and Biocides

Indian soils have been used for growing crops over thousands of years without caring much for replenishing. This has led to depletion and exhaustion of soils resulting in their low productivity. The average yields of almost all the crops are among the lowest in the world. This is a serious problem which can be solved by using more manures and fertilizers. Manures and fertilizers play the same role in relation to soils as good food in relation to body. Just as a well-nourished body is capable of doing any good job, a well nourished soil is capable of giving good yields. It has been estimated that about 70 per cent of growth in agricultural production can be attributed to increased fertilizer application.

Thus increase in the consumption of fertilizers is a barometer of agricultural prosperity. However, there are practical difficulties in providing sufficient manures and fertilizers in all parts of a country of India's dimensions inhabited by poor peasants. Cow dung provides the best manure to the soils. But its use as such is limited because much of cow dung is used as kitchen fuel in the shape of dung cakes. Reduction in the supply of fire wood and increasing demand for fuel in the rural areas due to increase in population has further complicated the problem. Chemical fertilizers are costly and are often beyond the reach of the poor farmers. The fertilizer problem is, therefore, both acute and complex. It has been felt that organic manures are essential for keeping the soil in good health. The country has a potential of 650 million tonnes of rural and

160 lakh tonnes of urban compost which is not fully utilized at present. The utilization of this potential will solve the twin problem of disposal of waste and providing manure to the soil.

The government has given high incentive especially in the form of heavy subsidy for using chemical fertilizers. There was practically no use of chemical fertilizers at the time of Independence As a result of initiative by the government and due to change in the attitude of some progressive farmers, the consumption of fertilizers increased tremendously. In order to maintain the quality of the fertilizers, 52 fertilizer quality control laboratories have been set up in different parts of the country. In addition, there is one Central Fertilizer Quality Control and Training Institute at Faridabad with its three regional centres at Mumbai, Kolkata and Chennai. Pests, germs and weeds cause heavy loss to crops which amounted to about one third of the total field produce at the time of Independence. Biocides (pesticides, herbicides and weedicides) are used to save the crops and to avoid losses. The increased use of these inputs has saved a lot of crops, especially the food crops from unnecessary wastage. But indiscriminate use of biocides has resulted in wide spread environmental pollution which takes its own toll.

Lack of Mechanisation

Farm mechanization is the main plank of modern agriculture and many of the progressive countries have already mechanised their agriculture. There is no doubt that India has achieved considerable progress in the field of agricultural mechanisation over the past five decades. While the success of the Green Revolution in the 1970s was largely attributed to three major inputs – the increased utilisation of fertilisers and improved seeds (of HYVs) as well as irrigation, it is apparent that mechanisation as the fourth input also played a key role. Further, the development and dissemination of the mechanisation technologies was largely dominated by the private sector – machinery and implement manufacturers and distributors as well as the farmers themselves who were ready to invest in agricultural machinery and implements.[5]

Of course, In spite of the large scale mechanisation of agriculture in some parts of the country, most of the agricultural operations in larger parts are carried on by human hand using simple and conventional tools and implements like wooden plough, sickle, etc. Little or no use of machines is made in ploughing, sowing, irrigating, thinning and pruning, weeding, harvesting threshing

and transporting the crops. This is specially the case with small and marginal farmers. It results in huge wastage of human labour and in low yields per capita labour force. There is urgent need to mechanise the agricultural operations so that wastage of labour force is avoided and farming is made convenient and efficient. Agricultural implements and machinery are a crucial input for efficient and timely agricultural operations, facilitating multiple cropping and thereby increasing production.

Agricultural Marketing

Agricultural marketing still continues to be in a bad shape in rural India. In the absence of sound marketing facilities, the farmers have to depend upon local traders and middlemen for the disposal of their farm produce which is sold at throw-away price. In most cases, these farmers are forced, under socio-economic conditions, to carry on distress sale of their produce. In most of small villages, the farmers sell their produce to the money lender from whom they usually borrow money.

According to an estimate 85 per cent of wheat and 75 per cent of oil seeds in Uttar Pradesh, 90 per cent of Jute in West Bengal, 70 per cent of oilseeds and 35 per cent of cotton in Punjab is sold by farmers in the village itself. Such a situation arises due to the inability of the poor farmers to wait for long after harvesting their crops. In order to meet his commitments and pay his debt, the poor farmer is forced to sell the produce at whatever price is offered to him. The Rural Credit Survey Report rightly remarked that the producers in general sell their produce at an unfavourable place and at an unfavourable time and usually they get unfavourable terms. In the absence of an organised marketing structure, private traders and middlemen dominate the marketing and trading of agricultural produce. The remuneration of the services provided by the middlemen increases the load on the consumer, although the producer does not derive similar benefit. Many market surveys have revealed that middlemen take away about 48 per cent of the price of rice, 52 per cent of the price of grounduts and 60 per cent of the price of potatoes offered by consumers.

There are several challenges involved in marketing of agricultural produce. There is limited access to the market information, literacy level among the farmers is low, multiple channels of

distribution that eats away the pockets of both farmers and consumers. The government funding of farmers is still at nascent stage and most of the small farmers still depend on the local moneylenders who are leeches and charge high rate of interest. There are too many vultures that eat away the benefits that the farmers are supposed to get. Although we say that technology have improved but it has not gone to the rural levels as it is confined to urban areas alone. There are several loopholes in the present legislation and there is no organized and regulated marketing system for marketing the agricultural produce. The farmers have to face so many hardships and have to overcome several hurdles to get fair and just price for their sweat.[6]

Inadequate Storage and Transport Facilities

Storage facilities in the rural areas are either totally absent or grossly inadequate. Under such conditions the farmers are compelled to sell their produce immediately after the harvest at the prevailing market prices which are bound to be low. Such distress sale deprives the farmers of their legitimate income. The Parse Committee estimated the post-harvest losses at 9.3 per cent of which nearly 6.6 per cent occurred due to poor storage conditions alone. Scientific storage is, therefore, very essential to avoid losses and to benefit the farmers and the consumers alike. At present there are number of agencies engaged in warehousing and storage activities. The Food Corporation of India (F.C.I.), the Central Warehousing Corporation (C.W.C.) and State Warehousing Corporation are among the principal agencies engaged in this task. These agencies help in building up buffer stock, which can be used in the hour of need. The Working Group on additional storage facilities in rural areas has recommended a scheme of establishing a network of Rural Storage Centres to serve the economic interests of the farming community.

One of the main handicaps with Indian agriculture is the lack of cheap and efficient means of transportation. Even at present there are lakhs of villages which are not well connected with main roads or with market centres. Most roads in the rural areas are Kutcha (bullock- cart roads) and become useless in the rainy season. Under these circumstances the farmers cannot carry their produce to the main market and are forced to sell it in the local market at low price. Linking each village by metalled road is a gigantic task and it needs huge sums of money to complete this task.

Scarcity of Capital

Agriculture is an important industry and like all other industries it also requires capital. The role of capital input is becoming more and more important with the advancement of farm technology. Since the agriculturists' capital is locked up in his lands and stocks, he is obliged to borrow money for stimulating the tempo of agricultural production. The main suppliers of money to the farmer are the money-lenders, traders and commission agents who charge high rate of interest and purchase the agricultural produce at very low price. All India Rural Credit Survey Committee showed that in 1950-51 the share of money lenders stood at as high as 68.6 per cent of the total rural credit and in 1975-76 their share declined to 43 per cent of the credit needs of the farmers.

Except these Indian agriculture is facing many problems like mono-cropping, soil erosion, instability in prices, etc.

All problems of Indian agriculture sector can be concluded in three challenges that are important to India's overall development and the improved welfare of its rural poor:

- Raising agricultural productivity per unit of land: Raising productivity per unit of land will need to be the main engine of agricultural growth as virtually all cultivable land is farmed. Water resources are also limited and water for irrigation must contend with increasing industrial and urban needs. All measures to increase productivity will need exploiting, amongst them: increasing yields, diversification to higher value crops, and developing value chains to reduce marketing costs.
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- Reducing rural poverty through a socially inclusive strategy that comprises both agriculture as well as non-farm employment: Rural development must also benefit the poor, landless, women, scheduled castes and tribes. Moreover, there are strong regional disparities: the majority of India's poor are in rain-fed areas or in the Eastern Indo-Gangetic plains. Reaching such groups has not been easy. While progress has been made - the rural population classified as poor fell from nearly 40% in the early 1990s to below 30% by the mid-2000s (about a 1% fall per year) – there is a clear need for a faster reduction.

- Ensuring that agricultural growth responds to food security needs: The sharp rise in food-grain production during India's Green Revolution of the 1970s enabled the country to achieve self-sufficiency in food-grains and stave off the threat of famine. Agricultural intensification in the 1970s to 1980s saw an increased demand for rural labor that raised rural wages and, together with declining food prices, reduced rural poverty. However agricultural growth in the 1990s and 2000s slowed down, averaging about 3.5% per annum, and cereal yields have increased by only 1.4% per annum in the 2000s. The slow-down in agricultural growth has become a major cause for concern. India's rice yields are one-third of China's and about half of those in Vietnam and Indonesia. The same is true for most other agricultural commodities.

- Policy makers will thus need to initiate and/or conclude policy actions and public programs to shift the sector away from the existing policy and institutional regime that appears to be no longer viable and build a solid foundation for a much more productive, internationally competitive, and diversified agricultural sector.

PRIORITY AREAS FOR SUPPORT

Enhancing agricultural productivity, competitiveness, and rural growth

Promoting new technologies and reforming agricultural research and extension: Major reform and strengthening of India's agricultural research and extension systems is one of the most important needs for agricultural growth. These services have declined over time due to chronic underfunding of infrastructure and operations, no replacement of aging researchers or broad access to state-of-the-art technologies. Research now has little to provide beyond the time-worn packages of the past. Public extension services are struggling and offer little new knowledge to farmers. There is too little connection between research and extension, or between these services and the private sector.

Improving Water Resources and Irrigation/Drainage Management: Agriculture is India's largest user of water. However, increasing competition for water between industry, domestic use and agriculture has highlighted the need to plan and manage water on a river basin and multi-sectoral basis. As urban and other demands multiply, less water is likely to be available for irrigation. Ways to radically enhance the productivity of irrigation ("more crop per drop") need to be found.

Piped conveyance, better on-farm management of water, and use of more efficient delivery mechanisms such as drip irrigation are among the actions that could be taken. There is also a need to manage as opposed to exploit the use of groundwater. Incentives to pump less water such as levying electricity charges or community monitoring of use have not yet succeeded beyond sporadic initiatives. Other key priorities include: (i) modernizing Irrigation and Drainage Departments to integrate the participation of farmers and other agencies in managing irrigation water; (ii) improving cost recovery; (iii) rationalizing public expenditures, with priority to completing schemes with the highest returns; and (iv) allocating sufficient resources for operations and maintenance for the sustainability of investments.

Facilitating agricultural diversification to higher-value commodities: Encouraging farmers to diversify to higher value commodities will be a significant factor for higher agricultural growth, particularly in rain-fed areas where poverty is high. Moreover, considerable potential exists for expanding agro-processing and building competitive value chains from producers to urban centers and export markets. While diversification initiatives should be left to farmers and entrepreneurs, the Government can, first and foremost, liberalize constraints to marketing, transport, export and processing. It can also play a small regulatory role, taking due care that this does not become an impediment.

Promoting high growth commodities: Some agricultural sub-sectors have particularly high potential for expansion, notably dairy. The livestock sector, primarily due to dairy, contributes over a quarter of agricultural GDP and is a source of income for 70% of India's rural families, mostly those who are poor and headed by women. Growth in milk production, at about 4% per annum, has been brisk, but future domestic demand is expected to grow by at least 5% per annum. Milk production is constrained, however, by the poor genetic quality of cows, inadequate nutrients, inaccessible veterinary care, and other factors. A targeted program to tackle these constraints could boost production and have good impact on poverty.

Developing markets, agricultural credit and public expenditures: India's legacy of extensive government involvement in agricultural marketing has created restrictions in internal and external trade, resulting in cumbersome and high-cost marketing and transport options for

agricultural commodities. Even so, private sector investment in marketing, value chains and agro-processing is growing, but much slower than potential. While some restrictions are being lifted, considerably more needs to be done to enable diversification and minimize consumer prices. Improving access to rural finance for farmers is another need as it remains difficult for farmers to get credit. Moreover, subsidies on power, fertilizers and irrigation have progressively come to dominate Government expenditures on the sector, and are now four times larger than investment expenditures, crowding out top priorities such as agricultural research and extension.

Poverty alleviation and community actions

While agricultural growth will, in itself, provide the base for increasing incomes, for the 170 million or so rural persons that are below the poverty line, additional measures are required to make this growth inclusive. For instance, a rural livelihoods program that empowers communities to become self-reliant has been found to be particularly effective and well-suited for scaling-up. This program promotes the formation of self-help groups, increases community savings, and promotes local initiatives to increase incomes and employment. By federating to become larger entities, these institutions of the poor gain the strength to negotiate better prices and market access for their products, and also gain the political power over local governments to provide them with better technical and social services. These self-help groups are particularly effective at reaching women and impoverished families.

Sustaining the environment and future agricultural productivity

In parts of India, the over-pumping of water for agricultural use is leading to falling groundwater levels. Conversely, water-logging is leading to the build-up of salts in the soils of some irrigated areas. In rain-fed areas on the other hand, where the majority of the rural population live, agricultural practices need adapting to reduce soil erosion and increase the absorption of rainfall. Overexploited and degrading forest land need mitigation measures. There are proven solutions to nearly all of these problems. The most comprehensive is through watershed management programs, where communities engage in land planning and adopt agricultural practices that protect soils, increase water absorption and raise productivity through higher yields and crop diversification. At issue, however, is how to scale up such initiatives to cover larger areas of the country. Climate change must also be considered. More extreme events – droughts, floods,

erratic rains – are expected and would have greatest impact in rain-fed areas. The watershed program, allied with initiatives from agricultural research and extension, may be the most suited agricultural program for promoting new varieties of crops and improved farm practices. But other thrusts, such as the livelihoods program and development of off-farm employment may also be key.

CONCLUSION

The critical issues in Indian agriculture are related to knowledge and infrastructure. Although there isn't a lack of initiatives and institutions to tackle these issues, we have to become better at managing big systems to achieve success in our endeavors. At the same time, we should look into new approaches like private sector participation and harnessing of indigenous knowledge to improve performance. Small farmers who are especially vulnerable to the monsoons should be focused upon and services like credit and crop insurance should be made more accessible. This will ensure that agricultural sector remains viable and caters to the country's needs. Most importantly efforts are need to reduce population pressure on agriculture by diversifying the agriculture and overall rural economy by enhancing the rural non-farm activities.

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