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Original Research Paper

Food Security : From Challenges to Opportunities

Economics

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ABSTRACT

Despite considerable efforts being made to improve production, not much focus has been given to curb food supply chain losses. Success of Green Revolution has ensured ample availability of food, existence of food insecurity at the micro- level in the country has remained a formidable challenge for India. Economic growth cannot be restricted to the industrial and service sectors alone as it is the country's rural economy that feeds and sustains the people, besides ensuring our march to prosperity. Agriculture sector is facing many bottlenecks which need to address immediately to ensure availability and accessibility of food.

INTRODUCTION

One of the most pressing and urgent challenges that our world faces is ensuring food security for all. Food Security means enough food is available at global, national, community and household level. The Food and Agriculture Organisation (FAO) figures indicate that there are 22 countries, 16 of which are in Africa, in which the under-nourishment prevalence rate is over 35%. India is one of those countries, which are miles away from achieving the cherished goals of food for all, where more than one third of the population is estimated to be absolutely poor and half of the children are under nourished in one way or the other. International Food Policy Research Institute revealed the acute hunger situation in India. The Global Hunger Index 2010 ranks India at the bottom with 67th position (out of 84 countries) with a GHI of 24.1, which indicates alarming food insecurity situation. To handle the issue of food security there is need to understand its meaning, as it has many dimensions that stand beyond production, availability and demand for food. According to FAO, Food Security exists when all people, at all time, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The green revolution ensured that the country has moved from chronic food shortages to the era of surplus and export of most of the foodstuffs. Still, because of prevalence of high level of poverty, lower income, increasing population, less public spending in agriculture, and poor agricultural infrastructure, the food security seems a distant dream. This paper is an effort to take an insight into the major challenges to food security that need immediate attention and exploring the various opportunities to be food secure.

CHALLENGES TO FOOD SECURITY

The issue of Food Security has many challenges which if not addressed can make the achievement of this goal difficult. To ensure food security we need to take care of:

- Availability of food
- Accessibility of food
- Absorption of food

Following are the various challenges to food security:

IMPROPER PUBLIC DISTRIBUTION SYSTEM:

In order to ensure and improve access of the poorer section of the society to the food, Government of India created largest public distribution system based on procured commodities like food grains, pulses, oils etc. The largest distribution was aimed at food grains, yet the reality is that major part of the commodities never reached the targeted population. A World Bank survey has indicated that In India only 41% of the grains meant for public distribution reach the targeted beneficiaries. The reality is that despite huge food production, a huge buffer stock and an extensive network of PDS, millions of people are still food insecure and many even die of starvation.

INADEQUATE FOOD PROCESSING FACILITIES:

Horticulture accounts for 30%of agricultural GDP from 85%cropped area in India. Fruits and vegetables worth Rs. 130crore go waste daily out of total turnover of about Rs. 275crore in our country due to inadequate transport, handling, infrastructure and processing (Chahal 2012).

WASTAGE OF FOOD GRAINS AND POOR MANAGEMENT :

Wastage of food grains and management of food stocks are cause of concern. India is not fully equipped with proper storage and management system that would ensure scientific and safe storage of grains. Huge piles of food grains are unscientifically stored and are open to the vagaries of nature and damage by insects and moisture etc. It is being stated that Punjab and Haryana were together responsible for causing damage to as much as 76,762 tonne wheat during 2011-12, rendering it unsuitable for human consumption, while FCI lost 3338.01 tonne food grain, including 2401.61 tonne of wheat and 936.40 tonne rice(The Tribune, 2012).

INFLATION:

Inspite of increased agricultural production the price of essential food items are continuously surging making it difficult for people of lower income group to make their both ends meet. Skewed distribution of income, ineffective public distribution system, corruption, wastages, ever increasing cost of inputs, increasing MSP, poor handling of production etc. are some reasons responsible for the unjustifiable increase in agricultural prices.

DEPLETING WATER TABLE:

Growth of industrial and agricultural sector has resulted in increasing utilisation of water, which has caused considerable pressure on the development and sustenance of water resources, especially ground water resources. In general, ground water problems are mainly due to contamination and over exploitation or a combination of both. This problem affects agriculture production in many ways. As per F.A.O. (2008) a daily dietary energy intake of 2700 Kcal is widely used indicator for measuring food security and to produce one kilocalorie, one litre of water is needed. On the basis of above calculation we need 2700 litre of water to satisfy the daily need of one person. A study by Khan and Hanjra (2010) there is requirement of 12400Km3/year of water. Demand of water will up by 5600Km3/year from present 6800Km3/year of water for feeding need of population in 2050. Out of additional 5600Km3/year of water, amount

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of 3300Km3/year of water is deficit. This water gap is very dangerous for ensuring global food security. Punjab which is known to be feeding state of India is also under threat of water crisis. There is an average annual negative balance of 12 billion m3 of water leading to sharp decline in ground water levels and contribution of Punjab to the food security is not sustainable in the long run.

ENVIORNMENTAL DEGRADATION:
The dynamic expansion of food production in India over the last 40 years – often described as the "green revolution" – has been achieved at the expense of the natural environment on which agriculture depends. The HYV seeds required heavy inputs of chemicals and water, excessive use of the latter driven by primitive flooding methods of irrigation which results in soil erosion and hence depleting water tables. Excessive use of chemical fertilizers leads to deterioration of soil quality and hence production of poor quality of food.

LESS AREA AVAILABLE FOR CULTIVATION:
With the increasing population in India, density of population is also increasing fast. Land being the most important natural resource deserves the first consideration in the area alone, but also the uses to which the land is actually being put. Expanding industrial activities and urban centre extend the limits of cities and towns which generally comprise of highly fertile land. The average size of operational land holding in India has diminished progressively from 2.28 hectares in 1970-71 to 1.55 hectares in 2005-06.

UNPREDICTABLE WEATHER CONDITIONS:
With rainfall a prey to El Nino or La Nina effects, global warming and climatic changes have ensured a disastrous effect on farmers as there are heavy floods or cloud bursts in some parts and recurring droughts in others. Food security is severely influenced by climate change. The changing climate influences the food grain production in many ways. For example, excess or deficit rainfall may result in excess moisture stress or deficit moisture stress in crops, both the conditions harmful for the crops. Similarly high or low temperature results in variations in the length of crop growing season. These factors also affect the crop productivity and farm net income, making the objective of attaining food security very complex.

LACK OF PROPER MARKETING AND PRICING STRATEGY:
The farmers in India face severe problems in marketing their crop produce after harvest due to lack of remunerative prices for the end products. Several times, the farmers are forced to opt for distress sale leaving them in vulnerable condition due to poor market prices. The increasing cost of cultivation coupled with unreasonable prices makes the situation alarming. The situation is critical in case of crops other than rice and wheat.

CHANGE OF LAND USE :
One of the main reasons for food security crisis is the diversion of agricultural land from cultivation of food grains to cultivation of bio- fuel and medicinal plants. In India there has been a considerable increase in cultivated area of medicinal plants like amla, ashwgandha, and bio- fuel crop like jatropha in the recent years. For example, the cultivated area under amla was reported as 1,00,000ha and occupies about 40,000ha in South India only (Sunday Farmer 2011). In Tamil Nadu, the cultivated area under amla was found to be increased from mere 46 ha in 2000 to 9020 ha in 2011, which reflects the higher rate of increase in terms of crop diversification (The Hindu 2011). In several instances it was recorded that the traditionally productive regions for cultivation of food crops like rice and wheat were converted to medicinal and bio- fuel crops, which is alarming in the context of food security.

MEASURES TO DEAL WITH THE CHALLENGES TO FOOD SECURITY
To fulfil the objective of providing food to all, there is a need to enhance availability, accessibility and absorption of food through increase in production, revamping public distribution system, increasing levels of income, providing farmers with easy availability of quality inputs and by introducing effective pricing strategies. Following are the various steps, if implemented diligently can take our country closer to attaining the goal of food for all. These are certain issues which need to be addressed to explore the opportunities.

CROP INTENSIFICATION:
Crop intensification is the concept of growing more than one crop per year in the same field by increasing crop intensity. It includes:

- Intercropping
- Relay cropping
- Sequential cropping

Intercropping is the growing of two or more generally dissimilar crops simultaneously on same piece of land. There is crop intensification in both time and space dimensions. However relay cropping is the seeding or planting of succeeding crop after flowering and before the harvest of preceding crop. It is done to gain time for multiple cropping, to avoid soil moisture stress, stress in post rainy season crop and to avoid labour peaks at harvest of the first crop and planting of the second crop. Sequential cropping is the introduction of short season cultivars to increase land use efficiency. Following all these methods help in effectively harnessing natural resources for higher production and achieving food security.

CROP DIVERSIFICATION:
The gains of the green revolution started fading off in 1990s. The technology which gave rich dividends has reached to the saturation point. Thus making the agricultural scientists to think about the alternative strategies. The emphasis of agricultural scientist has been put on implementation of crop diversification. This was advocated to the farmers for two main reasons. First, the prices of food grains like rice and wheat were not encouraging and farmers ended up with very low net return even during years of bumper production. Secondly the productivity in case of these two crops has reached to the saturation point. Larger doses of chemicals are required to get same production year after year. Hence, by encouraging farmers to diversify to pulses, oil seeds, vegetables, fruits, flowers, livestock etc. their income can be increased, which in return helps them in making larger investments in agriculture to increase production.

EFFECTIVE PRICE SUPPORT POLICY:
The rising price of the inputs like fertilizers, pesticides, and cost of mechanical cultivation has made the agricultural production very expensive. The near freezing prices of crops have made the agriculture a non- viable venture. The Commission for Agricultural Costs and Prices (CACP) may decide the policy related to market price of crops in India, in a manner which would fetch better returns to the farmers. With the significant increase in cost of cultivation of food grains, the enhancement of Minimum Support Price

(MSP) at frequent intervals is highly essential. Otherwise the farmers may shift from cultivation of cereals and pulses to non food grain crops, which certainly pose a severe threat to food security in India

PROVISIONS OF CROP INSURANCE:
Natural hazards like floods and droughts occur frequently in India, challenging crop productivity and food security. Hence, the farmers must be provided with comprehensive crop insurance policies, so that in the event of unforeseen climatic aberrations they can be provided with compensation. Though the Government of India has initiated efforts for providing crop insurance to farmers since Independence, a major boost was given in the form of Comprehensive Crop Insurance Scheme in 1985, which covered the risk in cultivation of major crops against natural calamities and pests and diseases (Raju et.al 2009). These schemes help the farmers to adopt new and innovative farming practices and scientific modern technologies.

ACCESS TO GOOD QUALITY INPUTS AND IMPROVED TECHNOLOGY:
Farmers should have access to good quality seeds, fertilizers, credit and other inputs at prices they can afford. These inputs should also be accompanied by research extension and training, where increased public investment is needed. There is a need to transfer the latest technology to farmers at low cost to ensure better productivity and higher production levels besides enhancing their financial margins.

INNOVATIVE AND SCIENTIFIC FARMING:
To achieve the dream of food security there is a need to infuse innovative and scientific methods of farming to strengthen Indian agriculture. To harness science and technology and to increase productivity there is a need to create new varieties of highly productive plants, which are resistant to major pests and diseases. Organic farming is the need of the hour especially when over use of chemicals and pesticides have damaged soil productivity and affected the ground water quality.

EFFECTIVE PUBLIC DISTRIBUTION SYSTEM:
Despite of bumper crops and over- flowing granaries, the present food problem is due to lack of proper distribution, and the trading system impending free flow of food. Efficient PDS is very good way to overcome the problem of speculation by the private traders.

ENHANCING AGRICUTURAL PRODUCTIVITY:
The government through investments in vital agriculture infrastructure, credit linkage and encouraging the use of latest techniques, motivate each district/block to achieve local self- sufficiency in food grain production. However, instead of concentrating only on rice and wheat, the food crop with a potential in the area must be encouraged. Creation of necessary infrastructure like irrigation, storage and marketing facilities will also stimulate private investments in agriculture (Jaswal 2014).

CONCLUSION
Food security has been a major developmental objective in India since the beginning of planning era. Though success of green revolution has helped India tremendously in overcoming the problem of food insufficiency still we are miles away from achieving food security for all. Indian agriculture is reeling under the problems of bad weather conditions, ineffective PDS, depleting water table, environmental degradation, storage and marketing problems, agrarian crisis and so on. Food security in India can be achieved by paying higher attention to these issues. Agriculture is more challenging, competitive, demand driven and market oriented sector, hence there is a need to handle this sector with utmost professionalism, responsiveness, accountability and sound managerial abilities. There is an urgent need to confront various challenges in the way of achieving food security and formulate the policies to cash upon the opportunities available.

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