

An Indian

Experience

Population, Development & Environment



Edited by
Ambarish Kr. Rai
Amit Kumar


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Ambarish K. Rai and Amit Kumar

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CHAPTER 13

Impact of Population Growth on Food Security in India

Prasanna Joshi, Uma Swadimath and Raghavendra Hajgolkar

ABSTRACT

Poverty and population are the major problems that come in way of provision of food security. The Government aims at reducing hunger and malnutrition, for which it has introduced the public distribution system (PDS) to ensure the supply of essential food grains at low prices to the economically weaker sections of the people and also trying to reduce poverty. The present paper relates to the implication of the Malthusian theory of population. Thomas Malthus was the first to address food scarcity as an issue and defended that growing global population will eventually eclipse the earth's capacity to feed it. To ensure food security and quality food to the masses, this requires good warehousing facilities, adequate infrastructure in terms of quality safe storage system. The Government at both levels should provide a proper storage system and it has undertaken strict stringent measures to control black marketing and hoarding under the public distribution system (PDS). A transparent distribution system of subsidized food grains should be operationalized to prevent distributional leakages and malpractices thereby monitoring and regulating the public distribution system (PDS), thus assuring food security to the masses.

Keywords: Population Growth, Food Security, Development, Poverty, Agriculture.

INTRODUCTION

India being an agriculturally predominant country, even the first five year plan (1951–1956), gave importance to the development of agricultural sector. Since, then various Governmental policies have been initiated and implemented to increase agricultural production, at the same time there has been immense pressure about ensuring food security as the population of India is in an alarming rate.

The prime responsibility of the Government is to provide adequate food to its growing population and variations in the production of food grains has resulted as a major concern to the authority in providing nutritious food to its people. Poverty and population are the major problems that come in way of provision of food security. The Government aims at reducing hunger and malnutrition for which it has introduced the public distribution system. India is first, in the world in the production of milk and pulses; it is second in terms of production of rice, wheat, sugarcane, groundnut, vegetables and fruits production. India is also a leading producer of spices and plantation crops. The

Eleventh Five Year Plan (2007–12) witnessed an average annual growth of 3.6 per cent in the gross domestic product (GDP) from agricultural sector. Health is considered as one of the important factors to achieve economic growth as a healthier workforce provides a productive workforce. Food Security is an important factor that guarantees human security. It is one of the seven pillars of the United Nation's (UN) Development Programme's has original concept of human security, along with economic, health, environmental, personal, community, and political security¹. Food security has existed in International Development Literature since the 1940s. Later in 1970s, the operational concept of right to food was introduced by Food and Agricultural Organization (FAO) as food security. The World Food Conference (1974), defined food security as Availability at all times of adequate world food supplies of basic foodstuff, to sustain a steady expansion of food consumption and to offset fluctuations in production and prices². Amartya Sen's (1981), theory on food entitlement replaced earlier theories, according to him stressed shortages in food availability as the major cause of food insecurity. According to Amartya Sen, people are usually starved mainly because of lack of the ability to access food rather than because of its availability³. The present paper is to understand the importance of food security and the various schemes and programmes. It introduced by the Government to ensure food security in the country and also to promote good health amongst its citizens.

Review of Literature

- (a) *Agriculture and Food Management Chapter 8, Economic Survey (2012–2013)*: This survey lays emphasis on enhancing agricultural production through application of latest technology. It discusses about the various programmes which introduced to improve the agricultural productivity such as integrated nutrient management, new investment policy in the fertilizers and urea sectors and food management measures like the national food security mission, decentralized procurement scheme, food subsidy etc.
- (b) *Challenges of food security and its management-Position Paper 5; National Rainfed Area Authority (NRAA), Planning Commission, Govt. of India (May, 2011)*: This article examines the importance of food and nutritional security as one of the major objectives in the context of social and economic welfare of the people in India. It explains about the inflationary situation due to negligible supply of rice and wheat. This paper address the challenges of food security through analysis of the present trend of growth in production, procurement and safe storage of different food grain crops and the prospects of the public distribution system.

- (c) ***Food Security and the Targetted Public Distribution System in India by Dr. Ruth Kattumuri published in the Working Papers of Asia Research (2011):*** This article speaks about the impact of change in climate on food security in terms of availability, stability, access and utilization of food. Extreme weather conditions in these countries namely India, Pakistan, China, Russia and North Korea has affected food production thereby, it is affecting food security, nutrition and livelihoods of the communities in these countries. India being a large populated country and prevailing food inflation situation, it has been observed that one third of the food grains produced lack adequate storage facilities and it remains unprotected. This article also tells about the systematic framework to attain global food security which has become a priority for the global community.
- (d) ***Food Security and Indian Agriculture: Policies, Production, Performance and Marketing Environment - Shabd S. Acharya; Agricultural Economics Research Review (Vol. 22 January-June, 2009 pp. 1-19):*** This article gives an insight into the agricultural production in India and it measures to adopted ensure food security. This article also explains about the global scenario of hunger and food prices. It tells about the policy initiatives namely food for work, employment guarantee and right to food undertaken by the Government in order to bring India, out of the poverty-malnutrition-hunger trap.
- (e) ***Food Security and Nutrition: Vision 2020-R Radhakrishna and K Venkata Reddy:*** This article discusses the trends in food production in India and the importance of food and nutrition consumption. The article focuses on rain water harvesting techniques, moisture conservation and inter-cropping that are imperative to stabilize and improve the production in the dry-land areas.
- (f) ***Neo-Liberal Policy and Food Security in India: Impact on the Public Distribution System-Madura Swaminathan:*** This article throws on the extent of food insecurity in India. It informs that all India level 45.9% below the age of 3 were underweight or malnourished when a survey was conducted by the National Family Health Survey (NFHS-3) during the year 2005-06. It highlights the objectives of public distribution system (PDS) and its framework to provide essential food grains to the economically weaker sections of the society.
- (g) ***Right to Food in India-S Mahendra Deva, (Centre for Economic and Social Studies-Working Paper No. 50 (August, 2003):*** This article analyses the right to food in terms of availability, accessibility, adequacy and sustainability in the Indian context. It explains the right to food concept and the various programmes and policies introduced to attain right to food. The article also speaks about the Plan of Action which was adopted during the World Food Summit (WFS) in Rome in 1996. It

aimed at reducing the number of under nourished people to half of their number by 2015. It explains the programmes and schemes intended to attain food and nutrition availability to all the weaker sections of the society or people living below the poverty line.

- (h) ***Population Dynamics in India and Implications for Economic Growth (The Handbook of the Indian Economy (Chetan Ghate, Ed., Oxford University Press,) David E. Bloom-Harvard School of Public Health (January, 2011):*** This article explores the areas where India can accelerate its pace of economic development if it's working age people are productively employed. It considers factors such as labour supply, standard of living and savings that add to economic growth in India. It provides a comparative study about India's population, world population and rapid population growth in India, affecting food security and food production.
- (i) ***Solution worse than the problem- Targetting and the Food Security Bill (Policy brief series: No. 17; (March-May, 2012) CLRA-Centre for Legislature Research and Advocacy):*** This is brief information which discusses about the National Food Security Bill (NFSB), which was introduced in the parliament on 22nd December, 2011. It tells that the main objective of this bill was to ensure food for all and has divided the Indian households into 3 categories. It also critically reviews the public distribution system (PDS) policy and stresses on the need for proper regulation and control of the public distribution system and implementation of the National Security Bill (NFSB) both by the central and state Governments.
- (j) ***India's food and nutrition security – Prema Ramachandran, NFI-Bulletin of the Nutrition Foundation of India (Volume 31, Number 3-July, 2010):*** This article speaks about the various measures such as Anthyodaya Anna Yojana, National Rural Employment Guarantee scheme(NREG), public distribution system (PDS) and food for work programmes which introduced by the government to attain food security, provide employment and provision of food grains to the weaker sections of the society. It discusses about food production and the problems arising in maintaining food security. It also stresses on National Food Security Mission (NFSM), launched in the year 2007, in order to increase rice, wheat production, to maintain soil fertility, usage of technology and provision of employment to the rural youth.

Theoretical Background

The present paper relates to the implication of the Malthusian theory of population. This theory stated by Thomas Robert Malthus in the year 1803, explains that if population growth is rapid and not controlled, it doubles itself at a geometric rate and food production cannot be increased in the same

manner what he referred as the arithmetic ratio. Thomas Malthus was the first to address food scarcity as an issue and defended that growing global population will eventually eclipse the earth's capacity to feed it. This results in an imbalance between the size of population and growth in food production. A high population growth rate is not a good sign for the economic development of a country, particularly India. A huge population makes it difficult for the government to provide jobs, basic necessities to its citizens, thus resulting in high unemployment and poverty are major hurdles towards economic progress and development.

India being an agricultural country, due to this, its high population growth had to import food grains. Despite having a green revolution, food production and food security is a cause of concern for the policy makers. This is because lot of food stuffs gets destroyed due to inadequate storage facilities and there is non-availability of food and drinking water in the rural areas. A lot of children and women in the rural areas are under nourished as they do not have proper access to quality food. Russell Hopfenberg (2003), has also stated that the earth's carrying capacity by studying the dynamics between food production and agriculture. According to him, when there is the non availability of resources mainly food, the population will grow exponentially and eventually it stresses the fact that efforts should be made to increase food production. Another scholar Baker (1977), also stated that agriculture includes three main components mainly population, production and distribution where population and production are long term problems and distribution problems should be addressed. Lio & Liu (2008), have opined that a country's political system have an active role in agricultural production. They stated that political outcomes have very much influence on the agrarian and food production.

Objectives of the Study

1. To understand the impact of population growth on the economy.
2. To understand the importance of food security.
3. To study the various programmes and schemes introduced by the government to ensure food security in the country.

Impact of Population Growth on the Economy

Population growth does affect the economic growth in a country. A higher population growth becomes a major hindrance towards economic development of the country; as the government becomes incapable or rather face difficulty to provide basic necessities to the growing population. This will result in lower employment rate, lower income levels and poverty. India being an agricultural country is not able to provide adequate and nutrition food to the growing population particularly the weaker economic sections of the society. This has led to malnutrition amongst the children in rural areas and also affected

the health of women due to non-accessibility of proper healthcare facilities. Health is a crucial factor not only for an individual but also for the nation as healthier people build healthier nation and a better health workforce promotes a productive workforce, thereby supporting a strong economic development.

Table 1 The table shows the growth of population in India from 1951 till 2011. The population has increased nearly three-fold from 1951 to 1,210,193,422 millions in the year 2011.

Census-Years	Population
1951	361088090
1961	439234771
1971	548159652
1981	683329097
1991	846421039
2001	1028737436
2011	1210193422
Total	5117163507

Source: Size, Growth rate and distribution of population.

A higher population growth is a hurdle in assuring food security. To meet the market demand of a growing and urbanizing population, most experts believe cereal production needs to be increased by about 35 percent and meat production by over 55 percent in the next 20 years. According to the 2011 census population of India was 1,210,193,422 million. The state of Uttar Pradesh is the highest populated state with 200 million people which is more than the population of Brazil which is the fifth populated country in the world¹.

India though hugely populated, is considered as one of the fastest growing Asian economies has become more urbanized. According to the World Bank report 2010, the people living in urban areas has increased from 18% in 1960 to 30% in 2008. People living in cities are exposed to greater pollution levels than rural dwellers. They are subject to more stress, diabetes and there is increased prevalence of diseases that pose a serious threat towards India's economic well being. If there is no adequate food production, it becomes inevitable for the Government to import food grains to meet the growing population which will result in a trade deficit thus retarding economic progress. According to the International Food Policy Research Institute's 2011 Global Hunger Index, the upshot of this perennial problem is that about 60 million children in India are underweight and malnourished, while 21 percent of the population as a whole general is malnourished.

Importance of Food Security

The Food and Agricultural Organization (FAO) define food security as existing when people have economic and physical access to sufficient, safe

and nutritious food to meet their dietary requirements and enable an active and healthy life. Food and Agricultural Organization report is on 'The State of Food Insecurity' (2001), "Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life⁴."

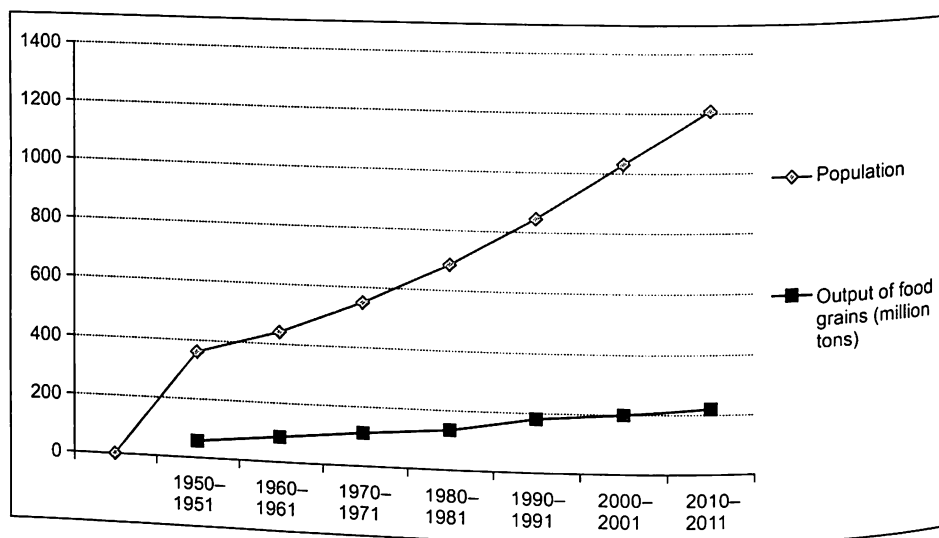
Consumption of nutritional food is an important objective to build a healthier nation. As it has been said that the Government is a care taker of its people from cradle to grave, it's very necessary that it provides adequate healthy food to its citizens. The Government at both state and central levels has enacted various laws and regulations to provide nutritional and quality food to its people. Due to increased income levels and changes in the lifestyles is on account of increased urbanization and various health related problems. People have become conscious about of quality food and consumption of nutrition contained food products. There is a large section of population in the country that suffers from malnutrition and inadequate availability of food grains. On the contrary, the prices of food grains and food products are rising tremendously so it's leading to inflationary situations in the country. High prices for the consumer, as well as limited quantity and quality, all resulting from supply chain inefficiency have led to increased malnutrition amongst the poor population.

Table 2 The table shows the growth of population and the production of food grains from the year 1951 till 2011.

Years	Population (in millions)	Output of food grains (million tons)
1950-1951	361	50.8
1960-1961	439	82.0
1970-1971	548	108.4
1980-1981	683	129.6
1990-1991	846	176.4
2000-2001	1028.7	196.8
2010-2011	121	218.2
Total	5115.9	962.2

Source: Economic Survey 2010-2011.

Chart 1: The chart shows population growth and the production of food grains from the year 1950-1951 till 2010-2011. The table and the chart indicate that there has been an increase in the population with a slow pace in the production of food grains.



The chart depicts though there is an increase in population growth but there is a slow growth in the production of food grains and if this situation continues, it will limit the country's ability to provide food for its citizens.

Food security is one of the focussed objectives of the Government both at the national and state levels. When India faced huge imports of food grains and severe droughts across the country during the sixties, the Government adopted a new strategy known as maximizing the production of cereals and build a solid foundation of food security.

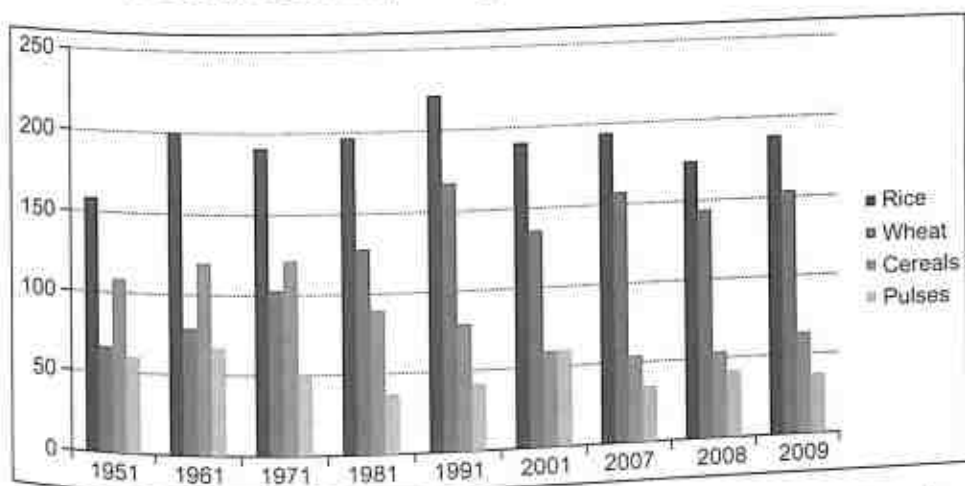
Table 3 The table shows the trends in per capita availability of food-grains in India which is measured in grams per person per day

Year	Rice	Wheat	Cereals	Pulses	Total food grains
1951	159	66	110	61	396
1961	201	79	120	69	469
1971	193	104	121	51	469
1981	198	130	90	38	456
1991	222	169	80	42	513
2001	191	136	56	30	413
2007	194	158	55	35	442
2008	175	145	54	42	416
2009	188	155	64	37	444

Source: Agricultural Statistics (2009), Ministry of Agriculture, Govt. of India.

From the Table 3, it is observed that there is a lot of variations in terms of production of cereals and pulses from the year 1951 till 2001, the impact of which continued even in the years 2007, 2008 and 2009 whereas there has been a consistent production of rice and wheat.

Chart 2: The chart represents the data from the table 1 indicating an increase in the production of food grains from the year 1951 till 2001 that in the year 2001 though there was a fall in the production it again increased in the years 2007, 2008 and 2009 respectively.



The objective of attaining food security is to make sufficient food accessible to all people in the country and fulfilling the dietary requirements to ensure good health amongst the people. Food security also implies achieving freedom from hunger and malnutrition.

Food security includes the supply of modern farm inputs, technical knowledge and financial assistance to farmers and ensures a better remunerative price for their produce. The policy of the government related to food security includes the creation, strengthening and expansion of the national agricultural research system (NARS) for developing new production technologies for food grains and other agricultural commodities, establishment, strengthening and expansion of agricultural education.

There is a lot of black marketing and hoarding, the government in order to control and curtail this activity has introduced regulatory measures by encouraging co-operative farming, maintaining buffer stocks and distribution of cereals and food grains through public distribution system (PDS). As per the assessment of World Food Programme (UNWFP, 2002), food assistance programmes in India have moved from 'food for the nation' to 'food for the people' and recently to 'food security for the vulnerable'. Provision of minimum nutritional support to the poor through subsidized food grains and ensuring price stability are the objectives of the food security system.

Schemes and Programmes of the Government to Ensure Food Security in the Country

Population growth, rising food, transportation and agricultural costs have led to food insecurity. Therefore, the government through its policy of minimum

support prices and public distribution system initiated the supply of essential food grains to the poorest of poor people called as 'Antodya' and mid-day meals are being provided to school children.

- (a) **Supplementary Nutrition Programme (SNP):** This programme intended to prevent malnutrition among the children below 6 years and nursing mothers. This programme was introduced in the year 1975. This programme benefitted around 22.9 million children and 4.8 million women through a network of 4200 projects in both the rural and urban areas throughout the country. Under this programme the children are also given vitamins and iron tablets through local child care health centers.
- (b) **Food for Work, Employment Guarantee and Right to Food Scheme:** The food for work was introduced in the year 1977–1978, with the objective of increasing the purchasing power of rural households and also through rural wage employment programmes. In the year 2001, this programme of food for work was merged into a programme known as the Sampoorna Gramin Rozgar Yojana (SGRY) which again is a rural employment scheme. Under this programme, wage workers were paid 5 kg of food grains along with the amount of wages as fixed by the State Government.
- (c) **Mid-Day Meals (MDM) for School Children:** This programme was introduced in the year 1995 to provide nutritional support to children of primary education schools. This programme intended to improve the nutritional status of the primary school children, and also improve their regularity to attending schools and also their retention. This programme was essentially a central government measure to provide food grains at free of cost to the state governments whereas the transport and cooking costs were to be borne by the respective State Governments.
- (d) **Right to Food:** To achieve better implementation of food distribution and employment, a campaign known as 'Right to Food' was started in the year 2001. This campaign aimed at proper implementation of public distribution system (PDS) and wage employment programmes across the country.
- (e) **National Rural Employment Guarantee (NREG) Scheme:** This scheme was introduced in the month of February in the year 2006, in it 200 most backward rural districts that came under the NREG Act passed by the parliament. Under this scheme, one member in a rural family is guaranteed employment for 100 days in a year; this scheme has converted nearly 300 districts in the year 2007.
- (f) **National Food Security Mission:** In order to increase the production of rice, wheat and pulses, maintain soil fertility and improve the farm economy, the central government introduced the National

Food Security Mission (NFSM) between the years 2007–2008. This centrally sponsored scheme was implemented in 144 districts of 16 states to increase production of rice, 142 districts of 9 states to increase production of wheat and 468 districts of 16 states to increase the production of pulses. In 2012–13, six north-eastern states namely Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and the hill states of Himachal Pradesh, Uttarakhand and Jammu & Kashmir were included under this scheme to facilitate the production of rice and wheat in these states¹.

(g) Food Management Programme: The objectives of the food management programme are procurement of food grains from farmers at fair prices and the distribution of food grains to vulnerable sections of society at affordable prices also have the maintenance of food buffers for food security and price stability. The Food Corporation of India (FCI) is the nodal agency for procurement, distribution and storage of food grains.

(h) Food Security Bill: The National Food Security Bill (NFSB) was passed in the parliament on December 22nd 2011 with the objective of assuring food security and to ensure effective implementation of the public distribution system. The National Food Security Bill (NFSB) divided the households into three groups namely: 1. priority households who are eligible to purchase 7 kg per month of subsidized food grains per individual, 2. general population entitled for 3 kg per month of subsidized food grains per individual and 3. general population not entitled for subsidized foodgrains⁵.

Group	Percent of Rural population covered	Percent of Urban population covered
Priority group eligible for 7 kgs subsidized food grains (per individual)	46%	28%
General population partially excluded by limiting entitlements to 3 kgs (per individual) and excluded till the state governments undertake PDS reforms.	29%	22%
General Population fully excluded	25%	50%
Total	100%	100%

Source: Policy brief series: No. 17; (March-May, 2012) CLRA-Centre for Legislature Research and Advocacy.

(i) The National Food Security Bill (NFSB) aims to provide food and nutritional security by ensuring access to adequate quantity of quality food at affordable prices for people, to live a life with dignity. The Bill includes the coverage of 75% of the rural and 50% of the urban population for subsidized food grains under the targetted public distribution system (TPDS), besides provisions for nutritional support

to women and children. Under this act, the state government shall be responsible for implementation and monitoring of the schemes of various Ministries and departments of the Central Government. In accordance with guidelines issued by the Central Government for each scheme, and their own schemes, for ensuring food security to the targeted beneficiaries in their state.

Findings of the Study

Economic poverty is affecting food security at the household level. The Food Security Act provides subsidized food to 62% of the total population in the country. Allocations of subsidized food grains for Antyodaya Anna Yojana (AAY) and Below Poverty Line (BPL) families are being made at 35 kg per family per month. For Above Poverty Line (APL) families, allocation varies from 15 kg to 35 kg in different states. The National Rural Employment Guarantee (NREG) scheme was extended to 300 districts in 2007 and since April 2008, it has been extended to the entire country which covered nearly 588 rural districts. Pune has ranked first among 18 metropolitan cities in the country on the food security index by the 'Food Insecurity Atlas of Urban India'. India is the major partner of SAARC food bank, setup in 2007 to meet the emergency food requirements in South Asian region⁶.

Conclusions of the Study

To ensure food security and quality food to the masses, this requires good warehousing facilities, adequate infrastructure in terms of quality safe storage system. The government at both levels should provide a proper storage system and it has undertaken strict stringent measures to control black marketing and hoarding under the public distribution system (PDS). Studies by the High Level Panel of Experts (HLPE) on Social Protection for Food Security in the 39th Session of the Committee on World Food Security (CFS) was held in October, 2012. It have stated that agricultural growth is effective in reaching the poor, and agricultural input subsidies have a positive impact on agricultural production, and it will help to raise farmers incomes and reduce rural poverty.

As Lio & Liu have stated that the political system influences agricultural production, it becomes pertinent that the government should educate farmers about the importance of application of post harvest technologies as this will not only protect the quality of food grains but also prevents them from post harvest losses which is mainly due to lack of proper storage facilities. A transparent distribution system of subsidized food grains should be operationalized to prevent distributional leakages and malpractices thereby monitoring and regulating the public distribution system (PDS), thus assuring food security to the masses. Doubling current crop production to avoid the Malthusian theory of population will be possible only if there is an increased initiative to promote and practice sustainable agricultural and food production.

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