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FOOD SECURITY IN INDIA AND ITS CHALLENGES

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Abstract: India is one of the largest producers of cereals like rice and wheat. However the more number of people are struggling with hunger malnutrition and poverty remains very high. Major problem faced by the India is 'the problem of food management and its distribution. Agriculture sector plays significant role in India. India is the largest producer in the world of milk, cashew nuts, coconuts, tea, ginger, turmeric and black pepper. Besides ensuring food availability existence food security at the micro level in the country has remained a formidable challenges for India. Food security both at the national and household level has been the focus of agricultural development in India ever since the mid sixties when import dependence for cereals had gone up to 16% and country faced severe drought continuously two years. For the increasing of production country is using new vision of agriculture technology, modern inputs. This paper has focused on the challenges India faces to meet the food security , measures to ensure food security.

Keywords: Food availability, formidable, agricultural technology.

Introduction: This somewhat Malthusian view of India's food security challenge, from the then director of FAO's Statistics Division did not force the Green Revolution, which through an inter-linked series of agro-technology innovation in the 1960s and 1970s led to the widespread introduction of High-Yielding Varieties (HYVs) of cereal crops. The Green Revolution transformed the supply of food grains in India placing the nation in a much better position to feed itself. More than four decades later India has achieved food self-sufficiency and was in 2012 the world's largest rice exporter (Pritchard et al 2013:41; Chandrasekhar 2012).^[1] At the same time, food stocks held by the food corporation of India stood at 76 million tones, 138% more than the stipulated 39 million tones buffer stock. But while national food security has been achieved, many household remain food insecure. Food insecurity but malnutrition in India co-exist with bulging domestic food grain facilities and strong export markets. There are more malnourished people in India than in any other country in the world. Food is essential for every person for living healthy and growing life. There are three dimension which plays important role to meet food security to every person.

There is a perception that China has, by and large, solved its 'food problem', whereas India has not.^[2] This rings true in a very specific sense. The crux of India's food problem today pertains not so much on increasing food availability or production but with the distribution of food. This is not to suggest that the challenges associated with ensuring food availability in sustainable ways is not a policy concern, but rather, in terms of the immediacy of challenges, ensuring food access would appear to score over concerns over food availability. For example, despite flagging growth rates in the agricultural sector relative to targets, India has seen impressive growth in foodgrain production in recent years. The National Food Security Mission has played a key role in augmenting production in cereals and pulses. Much of this has come from yield increases in the eastern regions in the country where the Green Revolution did not take place. At the same time, there has also been a strong and continuing trend for diversification into non - cereal and high-value commodities such as dairy, fruits and vegetables, which implies the possibility of higher quality diets. Investments in the agricultural sector have been especially strong

after 2004–05, both public and private, with private gross capital formation accounting for an increasing share of all investment.

Despite the large increase in production, access to food continues to be a serious issue especially in the context of extraordinarily high - inflation rates in food commodities in recent years and limited access in large parts of the country to high - quality diets. The imperative that the challenge of food security derives also from recent evidence from India and elsewhere suggests that income growth might not always translate fully or quickly enough to improvements in the health nutritional status of children, implying that this issue needs attention [3, 4, 5]. This weak link between income growth and nutritional outcomes implied that food security in the sense defined earlier would require special attention of policy - makers and cannot be presumed to follow as a consequence of growth. This is quite apart from a parallel discourse that argues for a rights - based approach to food security so that primary responsibility rests with the state. In general, there is broad agreement on the imperative of food security in India, but deep disagreements on how to achieve this.

Food Availability: That is total food production in the country plus the imported food plus buffer stocks maintained in Govt. granaries like FCI in previous year.

Food Accessibility: Food should be within the reach of every person.

Food Affordability: An individual should have enough money to buy proper safe and nutritious food to meet his dietary needs. To achieving food security is felt significantly in recent years due to political and economical pressure from the ever increasing population in India. After 66th year of independence we have seen lot of development and progress and today India is one of the largest growing economies in the world. In the recently released Global Hunger Index of 2013, India Ranked 63rd out of 120 countries.^[6]

The state of India's food security is worsening by the year. The cost of food items is increasing rapidly, making them unaffordable to a majority of the people. Added to these was is the short supply of pulses and edible oils. Which forces the central government to import them?^[7]

It is established that a human body requires a daily intake of about 50gm of protein. While people in the developed countries and most of the developing countries have a

satisfactory intake of protein, In India the per capita daily intake is only about 10gm. This endangers health and work performance. There have been many challenges in the context of food security in India in the last two decades.

- Challenges of climate changes: crisis of the three fs VIz food price, fuel prices and financial crisis.
- Established of WTO: particularly the agreement on agriculture (AOA) under it;
- Monitarable targets under the 10th and 11th five year plans similar to the Millennium Development Goals on poverty and women and child nutrition. These developments in the last two decades have provided both opportunities and challenges for food and nutrition security of the country.”

Objectives of the Study

1. What are the programmes and policies India has followed in order to realize food and nutrition security?
2. What should be done to realize food and nutrition security for all the citizens of India?
3. What is the challenges of food security in India?

India's food security: Food security is a condition related to the supply of food and individual access to it. Concerns over food security have existed throughout history. There is evidence of granaries being in use over 10,000 years ago, with central authorities in civilizations including ancient China and ancient Egypt being known to release food from storage in times of famine ^[8]. The final report of the 1996 world food summit states that food security “exists when all people, at all times, 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.”^[9] Food security indicators and measures are derived from country level household income and expenditure surveys to estimate per capita calorie availability. In general the objectives of food security indicators and measure are to capture some or all of the main components of food security in terms of food availability, access and utilization or adequacy ^[10]. India is home to 25% of the world's hungry population. An estimated 43% of children under the age of five years are malnourished (WFP 2012) India remains an important global agricultural player despite the fact the agriculture's share in the country's economy is declining. It has the world largest area under cultivation for Wheat, rice and

cotton, and is the world largest producer of milk, pulses and spices (World Bank 2012).

Food security in the final analysis depends on a stable and secure production base. In this wider context, it would be include all queues allied to agriculture, viz. horticulture, animal husbandry, dairy, poultry, and fishery, etc.^[11] Nature is bountiful and has given enough resources to sustain food production necessary for a community. Land and water, appropriate cropping systems, scientific package of inputs and practices-all these are at the command of humanity to assure it of food security. Government of India has taken several steps to increase productivity of agricultural. These schemes like; Rashtriya Krishi Vikas Yojna (RKVY), National Food Security Mission (NFSM), Development and strengthening of infrastructure facilities for production and distribution of quality Seed, National Horticulture Mission, Rain fed area development programme (RADP), integrated scheme of oil seeds, pulses oil, palm and Maize. Gramin Bhandaran Yojan etc.

In addition Government has also improved the availability of farm credit, introduce better crop insurance schemes, increased minimum support price, improved marketing infrastructure etc.^[12]

National Food Security Act 2013: The National food security act was adopted by the Indian Parliament on 10 September 2013 and extends to the whole of India. It foresees that every person belonging to a priority household is entitled 5 kg of food grains per month at subsidized prices, subsidized prices for rice, wheat and coarse cereals should not exceed INR 3, 2, and 1 per kg respectively, for a period of three years, after that, prices may be adjusted by the central Governmental. Addressing food security based on a rights based approach rather than a welfare approach is a major change in Indian food policy.^[13] Eligible household will comprise upto 75% of the rural population and 50% of the urban population. This means that India's National Food Security Act could cover up to 834 million person, or 67% of the Indian population. Household covered under the "Antyodaya Anna Yojna" scheme- a programme for the poorest of the poor- are entitled to 35 kg of food grains per household per month at the above-mentioned prices, special entitlements shall also apply to pregnant and lactating women and children up to age of 14.^[13]

Challenges of food security in India: Food security is the back bone of the national prosperity and well being. The progress and growth of any nation is directly linked to food security. A family is considered to be food secure when its member do not live in hunger or fear of starvation. In India, approximately, 320 Indian go to bed without food every night and recent data is very much alarming and situation is going even worse. Food riots have taken many countries of the world. It's becoming very difficult to maintain food security. In rural context, agriculture development for small and marginal farmer is the most important dimension of food security.

Indian food and nutritional security is being challenged by many social, economic and environmental factors such as increase in the population, increasing urbanization and increasing demand of food due to arising income. In addition, dietary preferences such as high demand for livestock products and consumption of more processed foods are also creating pressure on the food supply system.

Climate change is one of the most impacting challenges to long term food security as it could lead to dramatic scarcity of fresh water in the northern and peninsular regions of the country. Various estimates suggest that India will experience an increase of 2.2-2.9 degree Celsius in average temperature by 2050 affecting overall production of rabi and kharif crops with simultaneous loss in milk, fish and meat production. Rain fed agriculture which covers 60% of all the cultivated land in the country will be particularly hard hit.

Declining and degrading land resources also pose a serious threat to food security as the availability of per capita land is declining sharply due to increase in population. Further in some cases, agricultural land is being diverted to other uses such as infrastructure development, urbanization and industrialization negatively affecting to agricultural production. Pandemic pest and diseases in animal population increase the production risks and present a major challenge for ensuring food security in the country.

Some Suggestions for ensuring for security

Increase in productivity: To maintain productivity is most important part of Indian agriculture. If production will increase, the cost of production decreases and prices also decrease and stabilizes and both producer and consumers benefit will be high. The fall in food prices will

benefit the urban and rural poor more than the upper income groups. Because the farmer spends a much larger proportion of their income on cereals than latter. All the efforts need to be concentrated on accelerating growth in productivity.

Education and literacy rate: Rapid economic growth alone is unlikely to reduce dramatically the number of food in secured population. An increase in income is necessary but not sufficient condition to achieve food security in general and nutrition security in particular non-food factors such as education, health care, child care, clean water and sanitation are critical factors in determining nutritional status and must be improved along with income empowerment of women.

Investment of education, the most crucial aspect of human development, is necessary for developing and economically prosperous society and for equity and social justice which in turn, improved the food security in the country.^[14]

Water for Sustainable food security: It is evident the water is important for agricultural growth and rural poverty alleviation. Since independence, there has been a remarkable increase in water supplies for irrigation through the buildings of large and medium surface irrigation schemes and ground water development. The demand of water in agriculture is growing India, being crop-based, needs to produce more and more from less and less of land and water resources improved management of irrigation water is essential in enhancing production and productivity. Food security, poverty alleviation. Agriculture is the biggest user of water accounting for about 80% of the water withdrawals.

Use fertilizer more efficiently: At tree hunger were not big fans of synthetic fertilizers, but the reality is that they are used in large quantities around the world. There is some good Neuse based on previous studies, West and his team estimated that the use of fertilizers with nitrogen and phosphorus on wheat, rice and maize crops could be reduced by 13-29% and still produce the same yields. Further efficiency could be gained through adjustment in the timing, placement and type of fertilizer.

Enhancing yield of major commodities: Agriculture accounts for 14% of India GDP and about half of total employment (2012). Two-third of India population depends on agriculture and related activities for livelihoods. The need to improve agricultural productivity and

sustainability is well recognized in India is 12th five year plan(2012-17) which aims to increase agricultural GDP growth to 4% per annum.^[15]

Increasing the productivity of agricultural sector implies both raising the productivity of staple crops, which is essential to feed a growing population and diversifying agricultural production to higher value products. Indian government should be adopted new technology such as improved seed varieties for increasing production.

Support for risk management: Small farmers not only have few resources to invest but also face higher level of risk in any capita investment as compared to wealthy farmers. The small farmers can be prevented to take extreme steps by creating the necessary policy environment to reduce risk, like diversification, generation of new livelihoods, off-form income, and institution support, access to information, technology, inputs, credit and crop insurance.

India and most of the countries in South Asia have concentrated on enhanced production of a few food commodities like rice and wheat, which could quickly contribute to their total food agricultural production. The need of higher investment in agricultural research. An integrated approach of developing crop varieties with greater efficiency in utilization of nutrients and other natural resources.

Sustainable Nutritional Security: In all of these debates, be it on the procurement, distribution policies or the fiscal implications of the NFSR, so far the overwhelming attention has been on the major cereals, rice and wheat. An ambitious and holistic programme of food security necessarily requires adequate supply of food at the macro level to meet the effective demand of the country as a whole, but also one that ensures superior dietary quality. The official definition of food security embraces nutrition; in fact, the accepted definition is of food security and nutrition and not just food security, as per the Committee on Food Security, a 192 - country UN committee. ‘Likewise, although the NFSR specifies these two separately, ‘to provide for food and nutritional security in human cycle approach. ...’ and repeatedly emphasizes policy tools to address the nutritional security in the arena of public debate, these issues have largely slipped through the cracks.

Further, there is increasing convergence in views today that food imports, even if feasible, are not a viable option either economically, politically or strategically. Past attempts of the

Government of India to import wheat, in 2000 and 2006 for instance, demonstrated the difficulties of procuring ample quantities of the quality and price required in the international market. Recent world price increases have shown that the greater the self - reliance of a country, the more leverage the country has to protect itself against world price rises.

Both these challenges, of addressing nutritional security as well as that of reducing dependence on unreliable world markets demand focused effort on two fronts; it is simultaneously a challenge for domestic agricultural production and agricultural price policy. While domestic production of foodgrains allows room to support food - based interventions as envisaged in the NFSR, there is no room for complacency. State procurement would be to the tune of close to a third of foodgrain production. In the coming years, with rapid structural change in cropping patterns influenced by changing demand patterns, food availability through domestic production would ideally have to come from productivity improvements in agriculture. Yield gaps between India and the world average continue to be significant, and there is scope to augment food production. For example, rice yield in India for the triennium ending (TE) 2007 was just over three fourths of the world and Asian averages and about half of that in China. Wheat yields were less than 60 per cent of China's, but 94 per cent of the world average for TE 2009. In the long run, leveraging productivity grains to support food security measures would be appropriate since it would minimize the disincentive to diversify into the production of other crops that would provide diverse diets while relieving constraints on food availability. A spatial expansion of the procurement shed, as opposed to the current concentration, is desirable for the same reason. With the spectre of climate change and the concomitant impact on agricultural production, there is a growing view that there must be a refocusing of priorities to leverage local agro - food systems to address nutritional concerns. A variety of approaches is available to build an agricultural system that is sensitive to nutritional concerns, specifically to address widespread micronutrient deficiencies such as iron deficiency anaemia or vitamin A. The simplest way is to strengthen the various food - related schemes targeted at children under the age of 6 years through child - care schemes, school meals programmes and those

targeting adolescent girls and women. There is much that is happening in India in this direction already. This is an area that calls for creative thinking and focused effort.

Reasons for the existing food insecurity in India

In rural and tribal areas: This is mainly due to lack of improvement in agricultural productivity owing to inadequate resources and markets needed to obtain agricultural stability. An agrarian crisis is currently being unleashed in India and it has a variety of causes, the prominent being the huge cut in government's development expenditure in the nineties, particularly in rural areas^[16]. Following the adoption of structural adjustment policies from the early 1990s, the focus was shifted on expenditure reduction. As against an average of 3.8 per cent of the country's Net National Product (NNP) spent on rural development per year during the seventh plan period 1985 – 90, the share of spending on rural development was down to 1.9 per cent of NNP in 2000 – 01 and rose only to 2.3 per cent in 2004 – 05. This adversely affected the availability and expansion of irrigation facilities, improvement in agricultural technology and overall food grain output^[17]. Lack of education and job opportunities in rural areas have further added to the problems. Climate change too, has an impact on the agricultural productivity, which affects the availability of food items and thus, food security. Major impact of climate change is on rain fed crops, other than rice and wheat^[18]. For the tribal communities, habitation in remote difficult terrains and practice of subsistence farming has led to significant economic backwardness.

In urban population: The key issue which catalyzes the problem of food insecurity in urban areas and needs to be addressed is the large proportion of informal workforce resulting in unplanned growth of slums which lack in the basic health and hygiene facilities. Rural-to-urban migration has shown a gradual increase, with its share in total migration rising from 16.5% to 21.1% from 1971 to 2001^[19]. These rural migrants form a large chunk of population referred to as 'informal sector'. The emergence of these rural origin pockets in the urban areas has resulted in a number of slum settlements characterized by inadequate water and sanitation facilities, insufficient housing and increased food insecurity^[20]. Another important point which might promote food insecurity is the dependence of this labourer class on daily employment wages

which tends to be variable on different days of the month and thus the food procurement and access is also fluctuating. A striking issue is that in India, all the privilege of the government schemes and programmes, aimed at helping the urban slum people, is enjoyed only by those slums that are notified. Ironically, around 50 % of the urban slums are not notified and thus are deprived of the government schemes. People from these un-notified slums have to buy their food from the common market at the competitive price and are devoid of the subsidized food made available through Public Distribution System (PDS) [21]. In spite of rapid economic growth since the early 1980s and 1990s, the access and absorption indicators of urban food insecurity convey a notion that there has been relatively negligible improvement in nutritional intake and deterioration in terms of food security.

In children and mothers: The children are food insecure because of factors attributed to overpopulation, poverty, lack of education and gender inequality. Poverty is a major cause as it limits the amount of food available to children. Overpopulation is linked to competition for food and can lead to malnutrition amongst children, especially in rural areas where access to food is limited. Lack of adequate knowledge amongst mothers regarding nutrition, breast-feeding and parenting is another area of concern [22]. Gender inequality places the female child at a disadvantage compared to males and causes them to suffer more because they are last to eat and considered less important [23]. Also, there is neglect in form of lack of preventive care (specifically immunization) and delays in seeking health care for disease [24]. Girl children have far less opportunity of schooling than men and boys do [25]. Even where women may have access to basic facilities such as primary health care and elementary education, lack of opportunities for higher education, vocational and professional training for women limits their capacity to become independent [26].

There is also an issue of wage differentials. In India, there does exist gender-specific wage rates differences. The females are at a more disadvantaged position compared to men in the rural labour market. The relative male-female wage gap is larger in non-agriculture sector where female workers earn 65 percent of male wages while in manufacturing, female wages are only 59 percent of male wages (Srivastava N, Srivastava R. Women, work, and employment outcomes in rural India. Paper

presented at the FAO-IFAD-ILO Workshop on Gaps, trends and current research in gender dimensions of agricultural and rural employment: differentiated pathways out of poverty; Rome. 31 March – 2 April 2009; p. 14.). All these factors contribute to limiting the productivity of women, in turn jeopardizing their long term purchasing power.

Faulty food distribution system: Inadequate distribution of food through public distribution mechanisms (PDS i.e. Public Distribution System) is also a reason for growing food insecurity in the country. The Targeted Public Distribution System (TPDS) has the disadvantage in the sense that those people who are the right candidates for deserving the subsidy are excluded on the basis of non-ownership of below poverty line (BPL) status, as the criterion for identifying a household as BPL is arbitrary and varies from state to state. The often inaccurate classification as above poverty line (APL) and below poverty line (BPL) categories had resulted in a big decline in the off take of food grains. Besides this, low quality of grains and the poor service at PDS shops has further added to the problem.

Unmonitored nutrition programmes: Although a number of programmes with improving nutrition as their main component are planned in the country but these are not properly implemented. For instance, a number of states have yet to introduce the Mid Day Meal Scheme (MDMS). In states such as Bihar and Orissa where the poverty ratio is very high, poor implementation of nutritional programmes that have proven effectiveness has a significant impact on food security [27].

National Horticultural Mission: Government of India constituted the National Horticulture Board in 1984 to augment the quality of food security in the country. The Board introduced the National Horticultural Mission with the objective to develop hi-techcommercial horticulture in identified belts, modern post-harvest management infrastructure as integral part of area expansion projects or as common facility for cluster of projects, energy efficient cold chain infrastructure for fresh horticulture product, promoting applied R & D for standardizing PHM protocols, Setting up Common Facility Centers in Horticulture Parks and Agri-Export Zones and Carrying out The Board carries out studies in order to identify weak areas in horticulture development and devise strategies to strengthen

horticulture development by providing technical services and consultancy services to developers.

National Project on Management of Soil Health and Fertility: To reinforce the soil fertility and productivity by improving the soil nutrients, the GOI instituted the National Project on Management of Soil/Health and Fertility Project, The Project aims at strengthening the Soil Testing Laboratories, promoting the use of integrated Nutrient Management and Fertilizer Quality Control Labs. All these institutional arrangements have been brought in force to promote the balanced use of chemical fertilizers and farmyard manure, based on soil test and demonstrations.

Support to State Extension Programs for extension reforms: This scheme is a centrally sponsored scheme and being implemented since 2005-06. This Scheme is now operational in 591 rural districts of the country. The scheme has features to provide training and HRD needs of extension functionaries coordinate and manage the agricultural extension related work in the District, providing innovative support through a ‘Farmer Friend’ at Village Level, creating essential infrastructure and also providing services to Rashtriya Krishi Vikas Yojana.

Rashtriya Krishi Vikas Yojana: The Rashtriya Krishi Vikas Yojana was launched in 2007-08 with an outlay of Rs 25,000 crores during Eleventh Plan with the objective to boost public investment in the states so as to achieve the target of 4 percent growth rate in agriculture and allied sectors. During this scheme several package of technologies has been provided in states of Assam, Bihar, Chhattisgarh, Jharkhand, Orissa, Eastern UP, and West Bengal for increasing crop productivity.

The Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM): This Scheme was launched on April 1, 2010, being implemented in 14 major states for the production of oilseeds, 15 for maize and 10 for oil palm. The component of pulses was merged with NFSM. This scheme is act as a valuable approach for crop diversification. The objective of the scheme is to provide assistance for the purchase of breeder seed, production of founder seed, production and distribution of certified seeds, plant protection incentives that includes chemicals, equipments, and weedicides. This scheme has been implemented in the state of Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat, Goa, Orissa, Kerala, Tripura, Assam, and Mizoram.

Major Challenges For Food Security: The Climate change is a crucial factor affecting food security in many regions of India. The sky-scraping investment in research and infrastructure requires technological innovations for escalating crop yield in special areas of agriculture. Crop production techniques have also undergone transformation, having implication for food security in India.

Crop Diversification: Owing to remarkable approaches by ICAR, the objective of food security has been achieved by the nation in the successive years of green revolution. Further the agricultural scientists has accentuated on implementation of crop diversification as by motivating the farmers for bringing in the cultivation of cotton, chili and sunflower and also diversifying the production of rice and wheat to oilseeds and pulses that would yield less quantity of irrigation, high profits as compared to field crops.

Bio-fuel and Medicinal Plant Cultivation: The another challenge for the country is the diversification in the cultivation of field crops like maize, wheat to Bio-Fuel and Medicinal Plants like Ashwagandha, Sarpogandha and Jatropha. The concept of diversification primarily came from United States and other European, Asian and African Countries of the world. The cultivation of sugar and other field crops for the production of ethanol is undoubtedly considered to be a gigantic challenge in case of food security. In several instances it has been observed that in South part of India, the state Tamil Nadu is enthralling an alarming step in this case. The recorded cultivation has found to be increased from 46ha to 9020 ha from year 2000 to 2010 [28].

Climate Change: The changing climate is the another challenge that came forward in case of food security , as it has unusual consequences on the production of food grains in the country. The stumbling blocks like the low/ heavy rainfall, extreme high/low temperature has its influence in form of drought (due to less moisture) or floods (due to high moisture) and all this hazardously effect the crop production and vis-à-vis farm net income of the country. The climate change has vital effect on both good production and socio-economic aspects through the remarkable changes in land utilization pattern and also water resource availability. These critical upshots can be removed only through the integration of bio-physical and socioeconomic aspects of food system.

Mismatch between Water Demand and Availability: The major constraint in the path of future agricultural growth and food security is the negative relationship between demand and supply of water. Globally it has been observed that annual demand for water is about 2.4 percent as compare to supply. About 20% of the globally cultivated area is irrigated, utilizing an estimated 70% of the global water use for fulfilling the expectation of high yields. But this is not proved as a relevant step in this case, as it cause lesser yield owing to the access of squat quality seeds [29]

Agricultural Prices: The lack of remunerative prices for the end products, distress sale, high cost of cultivation accompanied by the unreasonable market prices, alliance of all these act as a challenge in the lane of food security. Yes, it is true that the thought of globalization has brought openness in trade, but it is incapable to ensure healthier market prices. Thus, there is a need to regulate agricultural price policy for the welfare of marketing community that would be helpful in facilitating food security in India.

Production of High Yielding Varieties: With the changing climate scenario, the new varieties of field crops are another big confront for food grain production. The poor harvest index has been computed in case of pulses and oil seeds [30] This challenge can be achieved by introducing plant breeding programmes, employing modern biotechnology techniques and also by making farmers attentive for availing the information and utilizing the new techniques of production.

New Trends of Globalization: The introduced new trends of globalization akin to technology of faster communication, transport, high growth in service sectors, has resulted in challenges of inequity among various sections of the society, unenthusiastic competition among entrepreneurs. As a consequence these restrict the poor farmers to access the available facilities and also discouraged the globalize world and this indirectly have amplified the food insecurity in the country.

Special Economic Zones: Special Economic Zones have been promoted to stimulate industrial and economic activities. In SEZs many advantages and inducements are given to firms, but setting up of SEZs have displaced farming activities. Land and farmers are dislocated having deleterious consequences for food security of the country. No doubt, the concept of SEZ in India, have resulted in generation of additional economic activity and also endorsed

the exports of goods and services. But some initiatives like Land Acquisition Bill of the government, on the one hand promotes industrialization in the country and on the other hand create tribulations in the conduit of food security. The Polepally SEZ of Andhra Pradesh has set an example of food insecurity as out of 358 farmers 166 lost their farming occupation due to such proposal of SEZ back-up.

Capital Investment: The percentage share of capital investment in GDP for agriculture has been stagnant in recent years. Although, in Five Year Plans, the capital expenditure has shown improvement, however it has been noted that from year 2007-08 to 2009-10 the agriculture sector giving firm contribution to GDP (Economic Survey, 2010-11). The real challenge is to enhance the capital investment both from public and private sector.

Encouragement to Horticulture Products: For ensuring the food security, it is not only important to increase per capita availability of food grains but also providing right quantities of food items in the plate of common man. An encouragement is required for horticulture products for increasing per capita availability of food items and also ensuring food security [31].

Infrastructure Requirements: The facilities of ware houses, roads and transports and markets should be on priority for the government. In agriculture sector encouragement to PPP model will ensures faster development of infrastructure.

Conservation: The emerging challenge is the policy of conservation. The laws related with Climate flexibilities, agriculture, management of agricultural waste, building carbon sequestration of soil and overall natural resource management is immediately desirable.

Challenge of contamination

- Still, food security, which seeks to end starvation, does not abolish food adulteration. Virtually all items of food in India have chemicals or adulterants added to them, which make them unsafe to various degrees. Therefore, every public institution where food is served must ensure that what is served is chemically safe, nutritionally healthy and makes for the health of the nation.

This means an organised system of inspecting the quality of food offered in public places. We should be under no illusion that even godowns where grain is kept for easy distribution have enough safety features incorporated in them.

- The business of making food appear appealing and attractive often spoils the quality of what we eat. To make the nation healthy, every citizen must be able to buy food that is free from contamination. This will involve a comprehensive process involving testing facilities or laboratories even in the villages. We must have a food safety project that makes what we eat wholesome. Food security cannot be guaranteed merely by the provision of a certain quantity of grain to each family but by ensuring that every grain that is distributed is wholesome and nourishing, and not noxious. The ideology of food safety is a composite one, beyond merely making grain available physically.

Needed Measures

- We must have a state-sponsored food safety foundation that has branches all across each State, with equipment that can test food safety. An empowered force of trained food safety personnel should visit eateries, food stores, even festival venues where food is served, and take action where adulteration or contamination is detected through scientific means. The food safety police must have suitable powers conferred on them under legislative sanction. There should be an Act that provides statutory instrumentality to thus ensure the health of the people. A safety police force operating under the Health Ministry with powers of seizure is a new concept that will require an amendment to the Food Safety Act. Policing the process is a fundamental obligation of the state
- The destiny of India is as yet uncertain. Jawaharlal Nehru said in a celebrated speech: "The service of India means the service of the millions who suffer. It means the ending of poverty and ignorance and disease and inequality of opportunity. The ambition of the greatest man of our generation has been to wipe every tear from every eye. That may be beyond us but as long as there are tears and suffering, so long our work will not be over."
- The Food Safety Bill has a serious shortcoming, and this must be corrected by means of suitable amendments and policy reformation. The prices of vegetables and other necessary commodities for food consumption keep rising and it is still not

clear what the government is doing to control the trend.

Food Security in India: During the last few decades the total food production in India has increased at a much faster pace than the population. The Green Revolution started in the late 1967-68 was a noteworthy watershed resulting in phenomenal increase in the production of agricultural crops especially in food grains that has changed the food security situation in India. Wheat crop among the food grains drew maximum benefit from Green Revolution which tripled the wheat production over the next three or four decades while the production of cereals doubled in this period and consequently reduced by over 50 per cent both food insecurity and poverty in the country.¹¹ In India, food security is embodied under Directive principle of State Policy (DPSP) as exemplified in the Constitution of India, 1950. Article 4712 states, "The state shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the state shall endeavour to bring about prohibition of the consumption except for medical purposes of intoxicating drinks and of drugs which are injurious to health".

According to some studies the per capita energy supply has increased significantly, having norms of 2400Kcal for rural and 2100Kcal for urban areas, about 58 million people have come out of the vicious circle of poverty. Despite India's journey to ensure Food security, it is still in a pathetic state. India food security status situation remains to rank as "alarming" according to the International Food Policy Research Institute's Global Hunger Index, 2014¹³. It ranks 55 of the 120 countries in the world. Due to inflation the cost of food item is increasing day by day, leading to hardship by making them unaffordable for poverty traumatized people in India. In addition to these hardships the short supply of pulses and edible oils forces the government to import them. In addition, crop diversification, land fragmentation, climate change, lack of irrigational facilities has added up to the woes of the producers. Moreover, food availability and agricultural growth needs thorough examination as it is the key to food security. Another aspect is the food distribution through Public Distribution System (PDS), accounting for a significant part of government subsidies. The Government and its policies play a major role in ensuring Food

security. These policies contain employment generation schemes, social protection programmes, vocational training programmes, National Security Bill, etc. Role of other intermediaries like NGOs, civil societies, private sector and international organisation has let to effectiveness in Food security programme.

Food Availability in India: Availability refers to physical availability of food stock at desired quantities. In other words it means ‘sufficient’. Food production is the basis of food security. It can be alleged that the increased availability of food is an essential condition for achieving food security in India. Food availability relates to the supply of food through production, distribution, carryover stocks and imports. The net availability of food production is estimated by excluding exports and including imports. India's self-sufficiency in food grain has been a major achievement in Post- Independence period. The green revolution piloted in a dramatic and steady increase in domestic food grain production practically eliminating the need of food import, except to a very limited extend in times of extreme calamities or emergencies like famine, drought and serious crop failure^[32]. As per from the latest information from Directorate of Economics and Statistics, there has been a significant shift in the food production from 50 million tonnes in 1950-51 to 264 million tonnes in 2013-14. The average growth rate of food grain production from 1950 to 2014 is 2.5 per cent per annum.

Food security directly depends upon the total production of food grains, net availability of food grains and per capita net availability of food grains including the price of it. It is clear from the table that India has maintained a satisfactory level of food production. But the above table shows variation in the production of food grains. It is very clear that production is variable and this variability leads to variability in per capita availability of food grains¹⁷. The per capita availability of food grains stood at 510.8 grams per day in 2013 compared to 450.3 grams per day in 2012¹⁸.

Conclusion: Overall, India want achieve food security so it will be giving more attention to issue such as climate change, integrated water management, agricultural pricing , unsuccessful delivery of public services, availability and accessibility should be increase to the poor and needy. The imperative of food security in India is now widely acknowledged, but deep disagreements persist on the best way forward.

The year 2014 saw the passing of the NFSI designed to be a comprehensive set of interventions support food security over the life cycle of an individual. Although detractors perceive this to be an expensive and largely wasteful exercise that hinges on a faulty mechanism for procurement and distribution via fair price shops under the PDS, supporters suggest that this is the best way to ensure food access in many contexts in rural India. The immediate challenges for India lie in revisiting operational aspects of food procurement and distribution for a more cost - effective and nimble system. On the international front, as India seeks to defend its food policies in the WTO, rather than seeking protection for its policies, India should seek to leverage provisions within the AoA and negotiate for changes in some of the most problematic aspects of the AoA involving the metrics for computing indicators of trade distortionary support. It seems unnecessary for India to seek special protection for its food policies, nor to hold on to its record of restrictive trade policy. These steps need to be in tandem with continuing efforts at augmenting food production and diversification in sustainable ways. Given the gamut of issues facing India today, it appears that India would have to privilege the former two issues over the latter, where India is making steady progress already. The very challenges India faces also provide important opportunities to reconfigure its food security policies in meaningful ways.

References

1. Christoplos, L.pam. (2014). *New challenges to food security: from climate change to fragile states*
2. Reardon, T. and C.P. Timmer. (2014). “Five Inter-Linked Transformations in the Asian Agrifood Economy: Food Security Implications,” *Global Food Security*. 3(2)
3. Haddad, L., Alderman, H., Appleton, S., Song, L. and Yohannes, Y. (2002). Reducing Child Undernutrition: How Far Does Income Growth Take Us? Food Consumption and Nutrition Division Discussion Paper No. 137, IFPRI, Washington.
4. Block, R.I., Thomas, J.J., Bayman, E.O., Choi, J.Y., Kimble, K.K., Todd, M.M. (2012). *Are anesthesia and surgery during infancy associated with altered academic performance during childhood?* *Anesthesiology* 117: 494–503.
5. Coffey, D., et al. (2014). Revealed preference for open defecation: Evidence from new survey data. *Economic & Political Weekly* 49 (38), 43.
6. Jaswal, S.S. (2014). Challenges to Food security in India, *IOSR journal of Humanities and social science*, 9 (4): 93-100.

7. The Hindu. (2010): *India's Food security challenges*, January .07
8. Dev, S.M., Sharma, A.N. (2010). *Food security in India performance, challenges and polices*: ox fan India working paper series-VII
9. http://en.wikipedia.org/wiki/food_security
10. Food security portal.org/India
11. Acharya K.G.S. (1983). *Food security system of India evolution of the buffer stocking policy and its evolution*, New Delhi, concept publishing company. Page no. 3
12. Siddalingoreddy. (2015). Food security in India: challenges and suggestions for effectiveness: *Indian journal of applied Research* Vol(5) no. 4
13. FAO (2014): *Agricultural outlook* OECD PP.84
14. Saxena, J. (2014). Food security in India : Sustainability challenges and opportunities, Kurukshtera. *A journal on rural development food security*, vol (65) no.4 PP- 5-10
15. Thakur, A.K., Padmadeo, K.B. (2008). *Growth and Diversification of agriculture*, New Delhi: Deep and deep publication, p. 219
16. Jena AK. Statistics of poverty, or poverty of statistics: A reference to 55th Round of NSS. p. 305. Retrieved from: http://mospi.nic.in/mospi_seminarseries_nov04_5_1_final.pdf, accessed on 18.07.2011.
17. Athreya, V.B., Bhavani, R.V., Anuradha, G., Gopinath, R., Velan, A.S. (2008). Report on the state of food insecurity in rural India. 2008 Dec;:14. M S Swaminathan Research Foundation.
18. Chattopadhyay, N. (2008). Climate change and food security in India. International symposium on climate change and food security in South Asia; August 25–30, 2008.Dhaka, Bangladesh.
19. Mitra, A., Murayama, M. Rural to urban migration: a district level analysis for India. Institute of Developing Economies discussion paper No. 137.
20. Athreya, V.B., Rukmani, R., Bhavani, R.V., Anuradha, G., Gopinath, R., Velan, A.S. (2010). Report on the state of food insecurity in urban India. 2010 Sep;:34. M S Swaminathan Research Foundation.
21. Identifying and addressing food insecurity among the urban poor. Summary of the FSN forum discussion No. 35. 27 April – 15 June, 2009.
- Retrieved from:http://km.fao.org/fileadmin/user_upload/fsn_docs/PROCEEDINGS_Food_Insecurity_Among_Urban_Poor.doc, accessed on 18.07.2011)
22. Harishankar, Dwivedi, S., Dabral, S.B., Walia, D.K. (2004). Nutritional status of children under 6 years of age. *Indian J.Prev.Soc.Med.*, 35:156–62.
23. Mukherjee, A. (2010). Food insecurities faced by women and girl children. p. 11. CAPSA-ESCAP Paper.
24. Pande, R.P. (2003). Selective gender differences in childhood nutrition and immunization in rural India: the role of siblings. *Demography*. 40:395–418.
25. Banerjee, R. Tackling gender disparity in primary and secondary education and the empowerment of women. p. 3. Retrieved from: <http://www.ifuw.org/seminars/2007/banerjee.pdf>, accessed on 19.07.2011.
26. Husain, Z. Gender disparities in completing school education in India: Analyzing regional variations. pp. 8–9. Retrieved from: http://www.isid.ac.in/~pu/conference/dec_10_conf/Papers/ZakirHusain.pdf, accessed on 21.07.2011.
27. Bajpai, N., Sachs, J.D., Volavka, N.H. (2004). Reaching the Millennium Development Goal in South Asia. CGSD Working Paper No. 17.
28. Dev and Sharma. (2010). Food Security in India: Performance, Challenges and Policies, OXFAM India working paper series.
29. Brahmanand, P.S., Kumar, A., Ghosh, S., Roy, S., Chowdhury, Singandhupe, R.B., Singh, R. (2013). *Current Science*, 104 (7): 10.
30. Gustafson, J. D. (2011). Rising food costs & global food security: Key issues and relevance for India, *Indian Journal of Medical Research*, Sep 2013,pp 398-410.
31. Economic Survey, 2010-11, Government of India, 2010-11.
32. Anil Chandy Ittyerah. Food Security in India: issues and suggestions for effectiveness, retrieved from [www.iipa.org.in/upload/Food%20Security%20Theme%20Paper-2013.\(pdf\)](http://www.iipa.org.in/upload/Food%20Security%20Theme%20Paper-2013.(pdf))