

Food Insecurity to Food Security: An Overview at Global Level

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Abstract- This paper examines some important causes and challenges of the global food insecurity. The main focus is on reasons & causes of food insecurity coupled with the measures to achieve adequate food security. The data on priority areas of contemporary food issues was collected and it shows the food insecurity is major issue of concern. Finally, the way forward in ensuring adequate security of food was critically analyzed. Main focus is given on the various agencies and programs which helps in creating the awareness among the people about food security and helps them to find their way in contributing towards food security.

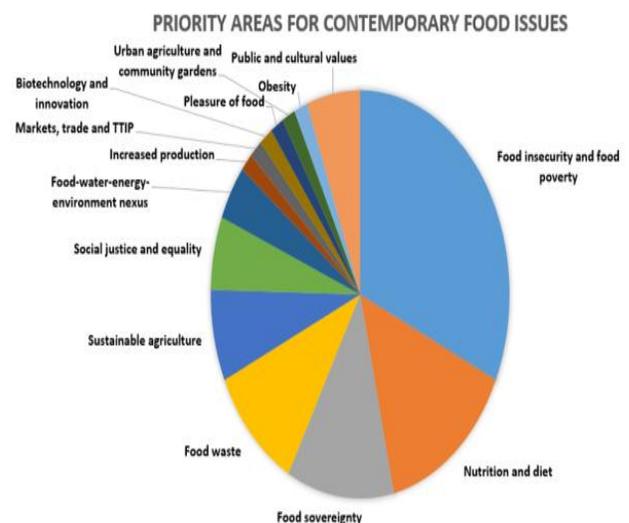
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I. INTRODUCTION

What are Food Insecurity and Food Security?

Food insecurity offers an accepted method for measuring food deprivation. The USDA defines food insecurity as a state in which “consistent access to adequate food is limited by a lack of money and other resources at times during the year. While “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 life”. In the countries like America the USDA estimates that 82.0% of area is under food insecurity (food deserts) is found. The major reason of food insecurity is poverty. Most of the families are buying cheaper and less nutritious food (malnutritious food) which leads to health risk to the population. The reason behind is not a lack of food but inability to maintain food security (to provide nutritious, safe, affordable food for every stake holder). In order to solve this problem the government should develop comprehensive, collaborative plans. Major focus should be given on increase in livestock management as well as the capacity for production and distribution of good quality food stuff. The involvement of public/ community support is very important in this aspect.(4,12) According to Agriculture Department’s Economic Research Service the levels of food insecurity and very low food security were unchanged from 2015 to 2016. The prevalence of very low food security also essentially unchanged, at 4.9 percent in 2016 and 5.0 percent in 2015, It has been reported that 41 million people, including 12.9 million children, live in food-insecure households, meaning that they struggle to consistently put healthy food on the table, According to the president of the

Food Research & Action Center (FRAC) there has been progress since the peak of food insecurity driven by the recession 14.9 percent in 2011 but it is much too little and much too slow. In order to solve this problem the government should lead better for addressing the fundamental problem of households struggling with hunger, Results of the online poll of priority areas for contemporary food issues by the Brighton and Sussex Universities Food Network (BSUFN) (8)

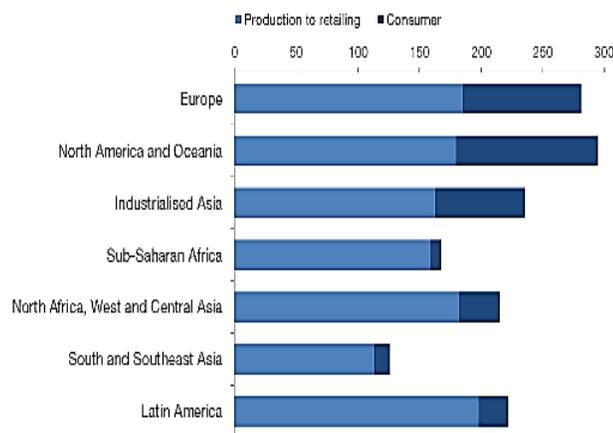


What makes ensuring food security so complex?(10)

Consider India. Agriculture accounts for 18% of the economy’s output and 47% of its workforce. India is the second biggest producer of fruits and vegetables in the

world. Yet according to the Food and Agriculture Organization (FAO) of the United Nations, some 194 million Indians are undernourished, the largest number of hungry people in any single country. An estimated 15.2% of the population of India is too malnourished to lead a normal life. A third of the world's malnourished children live in India. Addressing the problem of hunger and malnourishment in an economy such as India's requires improvements in the productivity of the agriculture sector, particularly smallholder farms. Rural and farming communities typically experience a higher incidence of poverty and hunger.

Agriculture must also be sustainable. The sector accounts for 30% of greenhouse gas emissions and 70% of freshwater withdrawals so attention has to be paid to energy and water use in farming. Waste is also a problem, with an estimated one third of food consumption, some \$750 billion in value is lost.



Source: The Food and Agriculture Organization of the United Nations (FAO)

Food Research & Action Center (FRAC) on Food insecurity has indicated that there is considerably high rate of food insecurity in House holdes in rural areas compared to those in urban areas, with higher rates of food insecurity overall (15 percent compared to 11.8 percent. Rate of food insecurity among households with children is higher than rates for households without children. These highlights also stated that rate of food insecurity varies reign wise and state wise.

Reasons of food Insecurity:

1. Close the yield gap. By 2050, 120 million hectares of natural habitats will be converted to farming in developing countries, the World Wildlife Fund estimates.
2. Use fertilizer more efficiently.
3. Raise low water productivity.
4. Target food for direct consumption.
5. Reduce food waste.

Causes of Food Insecurity in African and Other Third World Countries

The majority of the severest food crises after the second half of the 20th century were caused by a combination of several factors. The most common causes of food insecurity in African and other Third World countries were:

- Drought and other extreme weather events. The comparison of the severest food crises in the later history reveals that all were preceded by drought or other extreme weather events. They resulted in poor or failed harvests which in turn resulted food scarcity and high prices of the available food.
- Pests, livestock diseases and other agricultural problems. Pests such as desert locusts, extremeweather events AND many failed harvests in African and other Third World countries creates the problem of food insecurity. Cattle diseases and other agricultural problems such as erosion, soil infertility, etc. also play a significant role in boosting the food insecurity.
- Climate change. Drought and extreme weather regions also one of the reason of food crisis in the recent decades. (Especially in the West and East Africa which have problems with recurrent extreme droughts)
- Military conflicts. Wars and military conflicts especially in African and other Third World countries may not be directly responsible for food crisis but they exacerbate scarcity of food.
- Corruption and political instability. The international aid often did not reach the most vulnerable populations due to a high level of corruption and political instability in many Third World countries. Though the international community has always send help in the form of food supplies and other means which saved millions of lives in the affected regions.
- Cash crops dependence. The intentional attempt of government to encourage the production of cash crops to gain the income from which is used to import the food is one of the reasons of food crisis. (Because farmers do not produce enough food to feed the population.)
- Rapid population growth. Poor African and Third World countries have the highest growth rate in the world which puts them at increased risk of food crises. For example, the population of Niger increased from 2.5 million to 15 million from 1950 to 2010. According to some estimation, Africa will produce enough food for only about a quarter populations by 2025 if the current growth rate will continue.
- Other environmental factors: Soil degradation (including salinization due to heavy irrigation, desertification, erosion, and soil pollution related to industrial agricultural practices) may negatively affect global food security as well..(6)

FAO plans in controlling the food insecurity:**A) Food Balance Sheets**

One of the important tasks of FAO is to prepare Food Balance Sheets based on official statistics given by the various countries. These balance sheets provide essential information on the food system of a country. The major focus of FBS is on

- i) The domestic supply of food commodities
- ii) The domestic food utilization
- iii) The food supply available for human consumption.

The degree of undernourishment is calculated from Dietary Energy Supply (DES) derived from the Food Balance Sheets (12).

B) Capacity development

Capacity development is provided on the analysis of food consumption data. The main objective is to strengthen the national capacity to produce and use food security statistics derived from National Household Surveys. Technical support is also offered for the design of proper food consumption and food security modules to be included in household surveys.

C) Automatized processing of food data: ADePT-FSM software

In collaboration with the World Bank, FAO has developed software – the ADePT FSM – that aims at improving the consistency and availability of food security statistics extracted from National Household Surveys (Household Budget Surveys, etc.) containing food consumption data. The derived food security statistics are crucial to assess and monitor food security at national and sub-national levels and inform food security programs.

D) Food Security indicators

In line with the recommendations made at the Committee on World Food Security (CFS) Round Table on hunger measurement (September 2011), the FAO Statistics Division has compiled food security indicators aimed at capturing various aspects of food insecurity. The suite of indicators was first launched in the State of Food Insecurity in the World 2012, and it was analysed and further developed and in the State of Food Insecurity in the World 2013, 2014 and 2015 reports.

Strategies for food security

1) The U.S. government helps our silent crisis by providing food stamps — one out of four children receive food stamps, but it's impossible to "eat healthy" on five dollars a day. Approximately 40,000 charitable organizations like food banks, soup kitchens, and food pantries fill in the gaps.
2) Solutions are possible even though the majority of our food deserts are located in our largest cities. With the "eating local" movement growing, farmers markets are popping up in food-desert neighborhoods in our cities. Farmers are bringing in fresh, healthy food and results have been positive. Cities are also planting fruit trees and starting

urban gardens in empty lots. This helps neighborhoods develop an interest in nutrition and eating healthy food as well as building a sense of self-sufficiency.

3) Low-income families are accustomed to eating junk foods and transitioning to healthy foods may be difficult. New tastes and smells may be discarded at first. Also, diets high in sugar and corn syrup are addictive and like any addiction very hard to break. Affordability and availability are important factors and incentives/promotions need to be considered. We should also consider raising animals as part of our urban culture, especially fish and fowl. Aquaculture is a very viable solution and chickens could be as well.

4) There is need to develop a comprehensive, collaborative plan. Reform is imperative. Our Government must re-examine its subsidy programs. We can increase livestock management as well as the capacity for the production and distribution of healthy and affordable foods. Community support on both the city and local level is also crucial. Veterinarians, business leaders, public decision-makers, public health officials, and city planners need to take a stand and find new ways for America to move towards food security.

5) Sustained political commitment at the highest level, with food security and nutrition as top priorities, is a prerequisite for hunger eradication. The case studies of the State of Food Insecurity in the World 2014 report show that regions such as Africa and the Latin America and the Caribbean, as well as individual countries have strengthened their political commitment to food security and nutrition.

6) An integrated approach is required and needs to include: public and private investments to raise agricultural productivity; better access to inputs, land, services, technologies and markets; measures to promote rural development; social protection for the most vulnerable, including strengthening their resilience to conflicts and natural disasters; and specific nutrition program, particularly to address micronutrient deficiencies in mothers and children under five.

7) 20 million people are on the brink of starvation it's a time to act by world food program. The World Food Program long experience in humanitarian and development contexts has positioned the organization well to support resilience building in order to improve food security and nutrition. WFP helps the most vulnerable people strengthen their capacities to absorb, adapt, and transform in the face of shocks and long-term stressors.(12)

Highlights on World food program

Climate change is increasing the frequency of climate-related disasters, creating greater risks of hunger and the breakdown of food systems. The World Food Program is working with governments, international partners, researchers and local communities to analyze and understand the impacts of climate change through program, innovations, policy and technical support. Following are the few task that are undertaken by government through World food program (7)

1) To reduce the impact of disaster:

More than 80 percent of the world's food-insecure people live in countries prone to natural hazards. Disasters disrupt agricultural production and livelihoods, driving poverty and hunger. The World Food Programme helps the governments to reduce the impacts of disasters on their food security through various ways which include resilience building, strengthening the capacities of social safety nets, emergency preparedness, analyses and early warning systems. The World Food Programs asset creation programs give vulnerable communities food or cash-based transfers while they build or restore assets that will increase their resilience, enabling them to become food-secure in the long-term.

2) Poverty and Hunger of Smallholder farmers:

Smallholder farmers are highly usually facing the hunger problem. The World Food Programs works with various national governments to make sustainable food systems for smallholder farmers. This includes buying their produce & introducing them to formal markets, and enabling access to skills, knowledge and infrastructure to develop their livelihoods and make them more secure. Though the National social protection systems to protect citizens from stressors and shocks are available but, due to lack of coverage in many developing countries, the poor people are facing hunger and poverty. The World Food Programs helps to reach to every consumer by supporting national governments in the design and delivery of nutrition-sensitive social protection programs and safety nets, such as school feeding programs

Other Government agencies and planning

The Committee on World Food Security (CFS) is the foremost inclusive international and intergovernmental platform for all stakeholders to work together to ensure food security and nutrition for all. The Committee reports to the UN General Assembly through the Economic and Social Council (ECOSOC) and to FAO Conference. Using a multi-stakeholder, inclusive approach, CFS develops and endorses policy recommendations and guidance on a wide range of food security and nutrition topics. These are developed starting from scientific and evidence-based reports produced by the High Level Panel of Experts on Food Security and Nutrition (HLPE) and/or through work supported technically by The Food and Agricultural

Organization (FAO), The International Fund for Agricultural Development (IFAD), World Food Programme (WFP) and representatives of the CFS Advisory Group. CFS holds an annual Plenary session every October in FAO, Rome. Which could be battery trying to achieve the goal of Food Security.

II. CONCLUSION

The major reason of food insecurity is poverty. Since last decade the situation of food insecurity is improving but not at significant level. The development of ADePT FSM software and Food Balance Sheet clears the picture of Food Insecurity to whole world. To bring the food security through out the world and to solve the hunger and malnutrition problem improvements in the productivity of the agriculture sector, particularly smallholder farms is highly essential. There are many reasons of food insecurity and to solve this various agencies are working parallel to achieve the ultimate food security. The focus on world Food program, Committee on World Food Security (CFS) indicates integrated approach is highly essential to solve the problem of Food Insecurity.

REFERENCES

1. "Achieving Sustainable Food Security for All by 2020. 2006 International Food Policy Research Institute.
2. Angela Nwaniki, 2005. "Achieving food security in Africa." Challenges and Issues, Cornell University, U.S. Plant, Soil and Nutrition Laboratory
3. FAO, IFAD, UNICEF, WFP and WHO. 2017. The State of Food Security and Nutrition in the World 2017. Building resilience for peace and food security. Rome, FAO
4. Food Insecurity, Food Security By Christina Weiss Lurie and Joan C. Hendricks, V.M.D., Ph.D., Blog
5. <http://www.fao.org/cfs/home/activities/sdgs/en/>
6. <http://www.harvesthelp.org.uk/causes-of-food-insecurity-in-african-and-other-third-world-countries.html>
7. <http://www1.wfp.org>
8. <https://bsufn.com/category/bsufn/>
9. <https://www.myphilanthropedia.org/top-nonprofits/national-childhood-nutrition-health/2013/food-research-action-center-frac>.

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Vol 3, Issue 4, April 2018

10. <https://www.weforum.org/agenda/2016/01/food-security-and-why-it-matters/>

11. I.R. Ilaboya, E. Atikpo, F.E Omofuma, F.F. Asekhome and L. Umukoro Causes, Effects and Way Forward to Food Insecurity, Iranica Journal of Energy & Environment 3 (2): 180-188, 2012 ISSN 2079-2115 IJEE an Official Peer Reviewed Journal of BabolNoshirvani University of Technology DOI: 10.5829/idosi.ijee.2012.03.02.1673

12. Nord, M., Andrews, M., & Carlson, S. (2009). Household food security in the United States, 2008. Economic Research Report, 83. Washington, DC: U.S. Department of Agriculture, Economic Research Service

