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Changing Concepts of Food Security and Food Security System

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ABSTRACT

Food security refers to a situation where all people, at all times, have physical, economic and social access to sufficient, safe and nutritious food. Access to food is crucial to a healthy and productive life. The Sustainable Development Goals aim at ending hunger and malnutrition in the world by 2030. This seems a little hard to achieve, especially in the wake of the COVID-19 pandemic which caused a global economic downturn, hitting the poor the hardest. The relationship between the production of food and human population has been a cause for concern since the earliest times. However, income, education and employment are also closely related to food security. Food security is affected by a host of local, regional and global factors. The concept of food security has been widened to include the allied concepts of food safety, food sovereignty and sustainability. An efficient food security management system must consider not just the production and distribution of food, but also changing dietary habits, consumer behaviour and food waste. It must aim at the removal of structural inequalities, conflict reduction

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Changing Concepts of Food Security and Food Security System

and lowering the cost of nutritious food through interventions in global trade. Resilience of food systems to natural and human-made disasters must also be increased, and the most vulnerable sections of society must be adequately protected. Despite massive increases in food grain production and several government-sponsored programmes aimed at reducing hunger and malnutrition, the number of undernourished in India remains alarmingly high, while the population continues to rise. Therefore, devising a food security system that produces enough food with reduced per capita availability of resources remains a major challenge.

Keywords: Food security, Food sovereignty, Food safety, Food sustainability, Sustainable Development Goals.

Introduction

The Right to Food was recognised as a Basic Human Right (1948), vital for the enjoyment of all other rights. In 2015, the world committed itself to ending hunger and malnutrition by the year 2030 when it adopted the Sustainable Development Goals (SDG). The second of these seventeen goals was to “end hunger, achieve food security and improved nutrition, and promote sustainable agriculture”. The targets were to ensure safe, nutritious and sufficient food to all people all year round (SDG Target 2.1), and to end all forms of malnutrition (SDG Target 2.2). A decade after the adoption of these goals, the world is nowhere close to achieving them. 733 million people from across the world (about 1 in every 11 people in the world) faced hunger in 2023 (FAO, 2024). The COVID pandemic pushed this figure up to 9.9% in 2020. In 2020, there were 46 million more hungry Africans, 57 million more hungry Asians and 14 million more Latin Americans than in 2019. The number of hungry people in the world in 2023 was 152 million more than in 2019. Estimates show that 660 million people may still be without adequate food in 2030, 30 million more than if COVID 19 had not occurred. While rates of malnutrition are highest in Sub-Saharan Africa, India is the country with the largest number of undernourished people in the world. The total population of malnourished people in India would form the fifth largest country in the world. Out of the 127 countries ranked by the Global Hunger Index in 2024, India stood at 105. Food security therefore is a major concern, globally, as well as in India.

Objectives of the Study

- To understand the changing concepts of food security.

- To examine the threats to food security.
- To design a social and rational food security system model.

Food Security: Newer Perspectives and Allied Concepts

The term 'food security' may be simply defined as the availability of sufficient food at an individual level. A household whose members do not have to worry about hunger and starvation may be considered food secure. The World Food Summit in 1996 defined food security as the condition "in which all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life." Availability, access, utilisation and stability are recognized as the pillars of food security, and hunger can be eradicated only if all these are adequately addressed. Equal attention must be paid to food production, distribution, pricing and trading. Food security cannot be perceived simply as a balance between the demand for and supply of food. Experts have modified and refined the concept of food security as well as the strategies towards achieving it. Amartya Sen (1981) put forth the idea of **food entitlement** in the early 1980s. He saw famines as entitlement failure rather than a shortage of food. Food security can be ensured not only by making food available but also by providing people with the means to obtain it through mechanisms like income generation or social security. Severe famines in Africa in the 1990s drew the attention of the international community to the issue of hunger. Experts who met to discuss the issue at conferences concluded that it was poverty that drove people to hunger and starvation. It came to be believed that access to food could be ensured by increasing purchasing power through employment generation for the poor.

According to Kinsey (2005), food is an edible substance that nourishes the body, and provides it with energy to perform activities, and maintains and enhances its health. To perform the above functions, food should provide sufficient calories, proteins, vitamins and minerals. According to FAO (2018) undernourishment occurs when the amount of food an individual normally consumes cannot provide the quantum of energy required to maintain a normal, active, healthy life. This could result from a deficiency of calories (hunger) or macronutrients (hidden hunger). However, undernourishment is not the only problem related to intake of food. Individuals with physical and financial access to healthy food may choose to consume unhealthy diets. Thus, **malnutrition** is a term that expresses deficiencies, excesses and imbalances in a person's intake of energy and/or nutrients (FAO 2018). On the basis of the quantity and quality of food availability, USDA (2021) divides households into four categories. Households that do not face any problems with regard to

Changing Concepts of Food Security and Food Security System

food quantity and quality are said to enjoy high food security. The households that currently have adequate food accessibility but suffer from anxiety regarding food availability in the future are said to enjoy marginal food security. Households that have access to food that is adequate in quantity but poor in quality are said to be low food security while those that face problems with regard to both quantity as well as quality of food are in the very low food security category.

The rapid growth of the fast food industry and supermarket chains have added another dimension to food security as obesity emerged as a new threat to human health. Fast food, processed and packaged food, and ready-to-eat food and aerated soft drinks being pushed by MNCs through big budget advertising campaigns are high in calories and have been linked to several diseases. In order to ensure good health, the food consumed by individuals should not only be adequate and nutritious, it should also be free from any contaminants and additives that may cause death or disease. Food may be contaminated in the process of production (due to the use of chemical fertilisers and pesticides), processing (through the addition of food colouring, preservatives and taste enhancers) and distribution (spoilage during transportation or storage). As contamination makes food unsafe for human consumption and it has a negative impact on health, it is contrary to the idea of food security. **Food safety** is thus a new dimension added to the concept of food security. Medeiros, et.al (2001) tried to spread food safety education among all the consumers through their study. Statistics of the Centers for Disease Control and Prevention in the U.S reveal that foodborne diseases cause 76 million serious illness, nearly three lakh hospitalisations and around 5000 deaths each year. The main reason behind the major outbreak of foodborne illness is the transfer of microbial contaminants from food to human beings. Such cases can be reduced if proper food protection rules are followed in all the stages of food chain i.e., from production to consumption.

The entry of MNCs into the agriculture and food sectors impacted agriculture and food security in other ways as well. Guided by the principles of the capitalist economy, the production, distribution and consumption of food became commercialized and came to be seen as agribusiness. The industrialization and globalization of food systems began in the post-World War II period which saw the flow of surplus food from North America to other parts of the world. This dumping of subsidized food threatened the livelihoods of many small farmers by lowering food prices in the local markets. As agribusinesses expanded into the territories of traditional agriculture, policy makers adopted a techno-centric approach to problems of agricultural production and productivity. The rampant destruction of land, water, soil and

forest resources and the poisoning of air, rivers and oceans, the commodification of common resources and the loss of biodiversity threatened not just the livelihoods of small farmers but threatened to destroy the health of the planet itself. Simultaneously, international financing agencies enforced structural adjustments on many countries in the Global South in the latter half of the 1980s, forcing governments to reduce subsidies on agriculture (while government support for agriculture in the Global North continued unchecked). This triggered a global movement led by small farmers clamouring for food sovereignty. The idea of **food sovereignty** was brought into prominence by the members of Via Campesina in 1996 in the Tlaxcala Declaration. The food sovereignty approach to food security seeks to achieve food security by empowering farmers by giving farming communities (rather than corporates) control over the production and distribution of food (Via Campesina, 2003). Via Campesina views food sovereignty as “the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and to define their own food and agricultural systems.” It prioritises the rights of communities over the demands of globalized markets and corporations. It favours agrarian reforms that give control over land and other agricultural resources to small land holders, promotes agroecology, or farming practices that are environment friendly and sustainable, and seeks to set up a decentralised marketing system that connects farmers directly with consumers. This social movement prompted policy makers to accept the failure of agribusiness model in eradicating global hunger and to adopt a food sovereignty approach to food security (Wittman, 2023). Pachón-Ariza (2013) too laid emphasis on food sovereignty. Patel (2009), elaborates the concept of food sovereignty. According to Patel, food sovereignty grants to people rights over their food and agriculture systems. If the goals of sustainable development are to be achieved, farmers must be made self-reliant and protected from global forces that allow food prices to be manipulated by MNCs. Similarly he argues that communities that depend on fisheries for their livelihoods greater control over aquatic resources. Food sovereignty does not oppose international trade, it only advocates policies that protect the interests of farming communities and indigenous people while also ensuring that natural resources are used in an equitable and sustainable manner. A study conducted by Jarosz (2014) similarly makes a case for transforming the current food system into a system in which people who produce food have equitable access to, and control over agricultural resources upon which their livelihoods are based. These include land, water, seeds, fisheries and agricultural biodiversity. A shift from agribusiness to agro-ecology would help in achieving food security while protecting natural resources at the same time.

The largely negative impact of modern agriculture on the environment

Changing Concepts of Food Security and Food Security System

has become a major cause of concern. Not only is the agricultural sector the second largest emitter of greenhouse gasses, it contributes immensely to surface and ground water pollution, soil degradation, deforestation and biodiversity (Waithaka, 2023). The depletion in the quantity of crucial resources and the deterioration in the quality of other resources like land, water and air raise questions about the very sustainability of the system itself. Acevedo (2011) discusses the challenges posed to food security by the rapidly growing human population. He raises questions about the size of population that can be supported by the earth's carrying capacity. He identifies food production as the major factor in determining food security but believes that the role of technology, infrastructure and social institutions cannot be ignored. While the physical environment influences productivity to a great extent, human inputs in the form of irrigation facilities, well developed transportation and storage systems, inputs from agrosience (in the form of better seeds and improved agricultural practices) and socio-political factors (like farmer-friendly policies, good governance and fair trade) were equally important. Biel (2016), argues that food insecurity today reflects temporary stress in the existing mode of production and society has to be at the forefront of change to bring in sustainable solutions. There needs to be a paradigm shift in agriculture from 'green revolution' to 'ecological intensification'. Increased concern for the environmental impact of the agricultural system has drawn attention to **sustainable food security**. As per the Food and Agriculture Organisation, 2015, "sustainable food system (SFS) is a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised." Economic sustainability means that all stages in the food system are profitable. Environmental sustainability ensures that there is no negative impact on the environment and social sustainability refers to the equitable distribution of rewards across the society. Allen and Prosperi (2016) stress upon the need to develop food systems that are sustainable, contribute to human welfare and work towards achieving the goals that the community of nations has set for itself. They suggest ways of integrating the human and natural spheres to address the complexities of the socio-ecological system that affects food security.

Sustainable food system from health perspective has been studied by Lindgren, et.al (2018) sustainable food systems from the health perspective. They observed that population growth has not only increased the demand for food but also brought a change in dietary habits. The challenge facing humanity is to devise a food system that ensures that the entire population has access to healthy food without compromising environmental, societal and economic sustainability. Discussing examples from India and Japan, they show how

changing consumer behaviour can encourage the choice of healthy and environment-friendly diets and reducing food wastes. They highlight the challenges to food security in the face of competing demand for agricultural land for the cultivation of foodgrains as well as commercial and industrial crops and the issues related to reduction of yield and nutritional quality of crops due to climate change.

Tim Lang and Barling (2012) have summarized the changes in the concept of food security as it evolved over time. From viewing food security merely as a deficit in food production (in relation to demand for food), it is now also viewed as a result of a mismatch in policies related to food production and consumption. Therefore just producing more food may not result in food security. What is required is a redesigning of the food system in order to ensure social, environmental and economic sustainability. From the health perspective, food security is no longer limited to just undernourishment and hunger but also includes health issues arising from other forms of malnutrition. Assessment of the environmental impact of the food system is confined not merely to farmlands but now also extends to the transportation and distribution of food. A more holistic view of the food system takes into account waste generated not only on the farm but all the way down the chain until the consumer. From the earlier exclusively on less developed countries as hotspots of hunger, attention has also shifted to the role of global market forces in generating hunger in these hotspots. The solution to the challenges of food security require inputs not only from agricultural scientists but also from social scientists. The former may help in increasing production while the latter will ensure a just and equitable distribution.

Challenges to Food Security

Food security has been a challenge for humanity from the earliest times. Phases in world population growth have coincided with greater control over food supply. At the same time, until a few centuries ago, famines played a major role in keeping world population under check. The demographic history of the world has been marked by frequent famines that have killed millions in every inhabited continent. It was therefore natural for early modern intellectuals to perceive of food security as a match between food production and growing human population. In his seminal essay in 1798, Malthus predicted a world where catastrophes in the form of disease, starvation and war would keep human population under check. More than two centuries after Malthus made this dire prediction, human population has increased from 1 billion to over 8 billion. Humanity as a whole has managed to avoid mass starvation by bringing more land under cultivation in North and South America, Australia and Africa. New crops have been introduced around the

Changing Concepts of Food Security and Food Security System

world, and expansion of irrigation has increased food production. Better transportation and storage has allowed food to be transported from food surplus to food deficit areas. Technological inputs into agriculture, in the form of the Green Revolution, led to dramatic increase in agricultural production and productivity. Despite this, famines have led to mass casualties even in the twentieth century. Though droughts have been the most common cause of food scarcity, in many cases, faulty economic policies have also had a role to play. The deadliest famine in human history occurred in China between 1959 and 1961 due to political and economic factors.

Increase in food production has allowed humanity as a whole to avoid a food crisis. However, an equitable distribution of food remains a huge challenge, and per capita availability of food varies greatly from country to country. While severe shortages of food plague many parts of the world, chronic malnutrition, rather than starvation, kills more people. Undernutrition is believed to be responsible for nearly half of all deaths in children aged below five (UNICEF). Lack of adequate intake of calories, proteins, vitamins and minerals affects the physical, mental and emotional health of millions of mothers and children. At the same time, two and a half billion adults (one in eight) are overweight or obese (WHO, 2025).

The future scenario is shrouded in uncertainty. On the positive side, one may expect some increase in food production as more land is brought under cultivation. Expansion in irrigation and more efficient use of irrigation water may also contribute to enhanced food production. Improvements in farming techniques, as well as improved storage and transportation can increase the availability of food. Humans may also diversify the sources of food by including plants and animals which are not a regular part of their diets today. On the other hand, there are factors that may aggravate the food crisis. Increasingly, humans consume food grains in an indirect way by feeding them to animals whose flesh is then consumed as food. It is estimated that forty per cent of grain production is fed to animals, decreasing food available to humans. As per capita incomes rise, more people consume animal sourced products, leaving less food available for others. A major challenge comes from climate change as a warming of the earth, changes in the spatial and seasonal distribution of precipitation, and a more frequent occurrence of climate related disasters affect food production (IPCC, 2019). Food security is also threatened by diversion of fertile agricultural land to non-agricultural uses (like industry, dams and infrastructure) or to the production of non-food crops (like plant oils for making biodiesel). Falling water tables and degradation of agricultural lands will reduce food production from land while declining fish population from overfishing will reduce availability of food from the oceans. Any decline

in food availability will have a greater impact on low income consumers. Some of the threats to food security are discussed in the following section.

Population: The human population has grown exponentially in recent centuries. Having reached the one billion mark in 1804, it grew rapidly to 8 billion in 2022 (UNPD, 2019, UNDESA 2024). At this rate of growth, it is projected to cross 10 billion by 2050. With a population of more than 1.4 billion, India has 17.7% of the world's people. Producing more food to meet the needs of this large and growing population is a global and national challenge. Also, the need for housing and other infrastructure for the additional population will lead to diversion of agricultural land for non-agricultural purposes.

Income: The unequal distribution of assets and income is a major factor in unequal access to food. Recognising poverty as a major cause of hunger, the Millennium Development Goals (MDG) aimed at a 50 per cent reduction in the number of people living in extreme poverty (less than a dollar a day) by 2015. In 2000, the World Bank reported that, 1.2 billion of the 6 billion people in the world lived on less than one dollar a day while almost half (2.8 billion) lived on less than two dollars a day. Between 1981 and 2001, the percentage of population in developing countries living on less than a dollar a day almost halved, falling from 40 to 21 percent. Although considerable success had been achieved in reducing extreme poverty between 1981 and 2001, estimates indicate that 2025 would still see over 800 million people living under \$1 a day

Education: Education has been recognised as a key component in development as it can equip individuals with skills, creativity and entrepreneurship, and enables them to make economic progress. The SDGs aim at ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. However, governmental neglect of this important sector has kept an estimated 100 million children, 55% of them being girls, out of primary schools.

Employment: The importance of employment in eradicating food insecurity was recognised by the ILO World Employment Conference, 1967. The eighth SDG also aims at “promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.” However, unemployment and working poverty, a condition when income generated from employment is too low to lift individual workers and their families above the poverty line, remain the main causes of poverty. In 2018, 8% of the world's workers were classified as extremely poor (living in households earning less than US\$1.99 per capita per day) and 13% as moderately poor (living in households earning between US\$ 1.99 and 3.10 per capita per day) (ILO, 2019).

Changing Concepts of Food Security and Food Security System

ILO estimates that the pandemic caused 114 million job losses globally in 2020. Losses were higher for women and young workers, at 5% and 8.7% respectively. Global unemployment increased by 33 million and the unemployment rate rose to 6.6%. Many of those who remained in employment had to face reduction in working hours. Overall, global labour income may have declined by 8.3%, or 4.4% of global GDP (ILO, 2021). The impact of pandemic on livelihood has further worsened the food security scenario. The ILO noted the persistence of extreme poverty, especially in low-income regions despite a positive change in income distribution (ILO, 2025). Trade barriers and tariff restrictions have further strained food security particularly in the developing regions of the world.

Climate Change: Climate change has emerged as a major threat to food security as it affects every component of the food system (Tewari, 2023). The Special Report on Climate Change and Land published by the IPCC (2019) highlights the many ways in which climate change affects food security. Rising sea levels due to melting ice and thermal expansion of seawater will submerge small islands, fertile coastal plains and river deltas, reducing land available for cultivation. Simultaneously, people displaced by coastal flooding will have to be resettled, creating additional pressure on remaining land. The intrusion of seawater into aquifers near the oceans will make groundwater unfit for domestic as well as agricultural use. Irrigation will be affected as water flow in perennial rivers will dwindle because of glacial retreat. The changing biophysical conditions will affect the productivity of farm lands, grazing lands and fisheries and frequent extreme weather events will affect food production. Outbreaks of pests and diseases will further aggravate the crisis. There will be more spoilage of food as rising temperatures will lead to increased microbial action. Access to food will be reduced because of rising prices and loss of livelihood and reduction in income among the poorest communities who derive their livelihoods from natural resources. The nutritional quality of food will also decline as increased carbon dioxide in the atmosphere reduces the ability of plants to absorb nutrients from the soil. Climate-driven conflicts can lead to displacement, further aggravating the food crisis. Thus, climate change threatens all the four pillars of food security.

Wars and conflicts: Complex emergencies created by wars and conflicts (including civil wars, insurgencies and riots) adversely affect food security not only in areas directly affected by them but also in other parts of the world. The effects may be short lived but can be long lasting in states where the capacity or commitment of the government to implement policies is limited by corruption or lack of legitimacy. The FAO found that 80 per cent of the stunted children in the world and about 60 per cent of all the undernourished

people lived in countries affected by conflicts (FAO 2017). War in Ukraine has triggered problems in the availability of food within Ukraine and worldwide because Ukraine is a major producer and exporter of foodgrains and oilseeds (Filho et al, 2023). Conflicts affect both the supply and demand for food (Shemyakina, 2022). Food production is affected by the destruction of agricultural lands as well as irrigation systems. Agricultural inputs like fertilizers may become scarce. Farmers may be forced to abandon their fields and move to safer areas. Farmers who still produce food may find it difficult to access markets due to disruption of transportation networks. Displacement of people from areas affected by wars and conflicts leads to loss of livelihoods and increased levels of poverty. Nearly two million people currently displaced in the Gaza Strip are currently facing a severe food crisis as war has destroyed nearly 70 per cent of agricultural fields and humanitarian operations are being severely restricted by military forces (Alnabih, et. al, 2024).

Food Security and the Food Security System

The concept of food security can be better understood in context of the food security system. The food security system includes all the activities and processes involved in delivering food to the final consumer. Starting from the production of food, it also involves the processing of food, its transportation and distribution, its consumption and the management of waste generated in each of these stages. All these components of the food system are interconnected and are also strongly influenced by the physical environment as well as socio-economic and political factors.

Food produced in farms, pasturelands, oceans and other water bodies requires processing to make it fit for consumption. Processing may be limited to simple activities that make it cleaner and more easily edible but can also involve manufacturing processes that completely transform the raw products. This food is then packaged and transported to wholesale and retail markets. During this period, it may also be stored for varying lengths of time. The product is eventually consumed by humans, consumption being influenced by the type of food available, the ability of the consumer to afford the food, consumer preferences and cultural norms. Simultaneously, the waste generated in every stage from farm to plate must also be properly managed by recycling, composting and disposing.

Each stage of the food system requires resources and inputs. Climate, land, soil and water are critical environmental factors affecting the production of food. Additional inputs include seeds, fertilizers, irrigation and energy. Infrastructure requirements include irrigation systems, food processing plants, storage facilities and means of transportation. The system also requires inputs

Changing Concepts of Food Security and Food Security System

from science and technology, as well as support in the form of favourable policies and good governance.

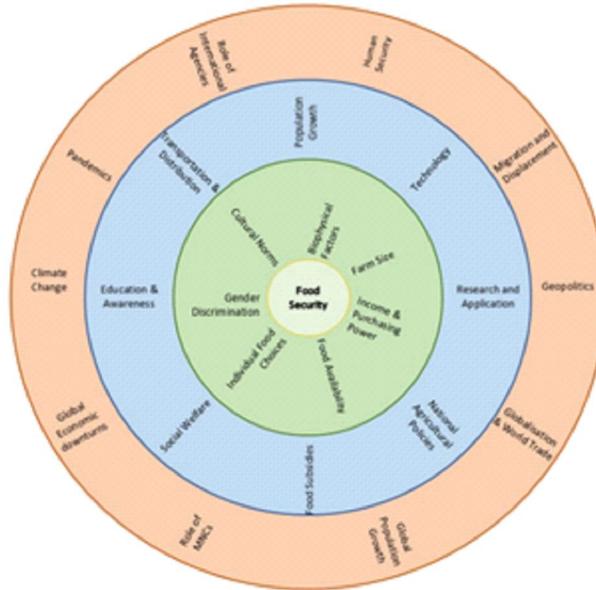


Figure 1: Food Security System

Based on this concept, a food security system model can be visualized as consisting of three concentric rings. The inner ring includes local factors that affect individuals and communities. The biophysical environment that includes characteristics of local climate and soil fertility affect the productivity of land. Farm size and income are key determinants of the economic condition of individuals and households, affecting their ability to purchase food. The availability of food at any given time may be affected by the local production of food and the food transported into the area. Food distribution within the household may be influenced by gender discrimination. Finally, the food consumed by individuals may also be affected by personal choices and cultural norms.

The second ring considers regional and national factors. Rapid population growth can affect the availability of food if it outpaces increase in food production. Technological and scientific input can increase food availability by increasing production, ensuring better transportation and storage, and reducing waste. National policies may encourage food production while food subsidies and other welfare measures can ensure food availability even to the

poorer sections of society. Education and awareness may encourage individuals to make healthier choices and overcome cultural barriers.

The outermost ring includes global factors that influence food security. Security from wars and conflicts goes a long way in enhancing food security. Migration and displacement due to conflicts and disasters have a negative impact on food security. Globalisation, geopolitics, the growing influence of MNCs and unfair global trade adversely affect food security in less developed parts of the world. This can be further exacerbated by unpredictable events like pandemics and global economic downturns. Climate change will affect the entire world but its impact will be especially severe on the poor because of their limited ability to adapt. International agencies like the United Nations could play a positive role but their ability to assist the poorer nations will be crippled by a lack of funds.

Conclusion

Various new dimensions have been added to the concept of food security wherein food safety, sustainability and food sovereignty have emerged as its major subsets. Ecological sustainability is currently the dominant paradigm, with emphasis not only on increasing food production, but also on making it sustainable. Changing dietary habits and consumer behavior, cutting down on food waste and building resilience of food systems to disasters are among the major challenges that require innovative and integrated understanding of human and physical systems. Interventions that will remove structural inequalities, reduce conflict and lower the cost of nutritious food, are necessary if the root causes of food insecurity are to be removed at the individual, household and community levels.

REFERENCES

- Acevedo, M. F. (2011). Interdisciplinary progress in food production, food security and environment research. *Environmental Conservation*, 38(2), 151–171. <https://doi.org/10.1017/S0376892911000257>
- Allen, P. (1999). Reweaving the food security safety net: Mediating entitlement and entrepreneurship. *Agriculture and Human Values*, 16(2), 117–129. <https://doi.org/10.1023/A:1007593210496>
- Alnabih, A. et. Ai. (2024) Food insecurity and weight loss during wartime: a mixed-design study from the Gaza Strip. In *Journal of Health, Population and Nutrition*. 43, Article number 222.
- Anderson, M. D., & Cook, J. T. (1999). Community food security: Practice in need of theory? *Agriculture and Human Values*, 16(2), 141–150. <https://doi.org/10.1023/A:1007580809588>

Changing Concepts of Food Security and Food Security System

- Filho, W.L. et. Al. (2023). How the War in Ukraine Affects Food Security. In *Foods*, 2023 Oct 21; 12 (21): 3996. Doi:
- ILO (2025) World Employment and Soial Outlook: trends 2025 in figures <https://share.google/XLVMAUSb9MZG0tgRe>
- Jarosz, L. (2014). Comparing food security and food sovereignty discourses. *Dialogues in Human Geography*, 4(2), 168–181. <https://doi.org/10.1177/2043820614537161>
- Lang, T and Barling, D. (2012). Food Security and Food Sustainability: Reformulating the Debate. *The Geographical Journal*, Vol. 178, No. 4 (December 2012), pp. 313-326
- Kinsey, J. (2005). Will food safety jeopardize food security? *Agricultural Economics*, 32, 149–158. <https://doi.org/10.1111/j.0169-5150.2004.00020.x>
- Meade, B. (2016). International Food Security Assessment. 2014-2024. Economic Research, USDA
- Medeiros, L., Hillers, V., Kendall, P., & Mason, A. (2001). Evaluation of food safety education for consumers. *Journal of Nutrition Education*, 33, 27–34. [https://doi.org/10.1016/s1499-4046\(06\)60067-5](https://doi.org/10.1016/s1499-4046(06)60067-5)
- Pachón-Ariza, F. A. (2013). Food sovereignty and rural development: beyond food security. *Economy And Rural Development*, 31(3), 362–377.
- Patel, R. (2009). Food sovereignty. *Journal of Peasant Studies*. 36(3), 663-706
- Persaud, S., & Rosen, S. (2003). India's consumer and producer price policies: Implications for food security. *Food Security Assessment, GFA-14*, 32–39.
- Rosen, S., Meade, B., Fuglie, K., & Rada, N. (2014). International food security assessment, 2014-2024. *Economic Research Service, GFA-25*, 1–44.
- Sen, A. (1981) *Poverty and Famines: An Essay on Entitlement and Deprivation*. Oxford University Press.
- Shemyakina, O. (2022) War, Conflict and Food Insecurity. In *Annual Review of Resource Economics, Vol.14, 2022*.
- Swaminathan, M. S. (2020). From Food Security to Nutrition Security in *Seminar, June 2020*.
- Tewari, P. (2023) Food Security and Climate Change: Challenges and Adaptations. *International Research Journal of Human Resources and Social Sciences*, Volume 10, Issue 11 November, 2023.
- Timmer, C. P. (2012). Behavioral dimensions of food security. *Proceedings of the National Academy of Sciences of the United States of America*, 109(31), 12315–12320. <https://doi.org/10.1073/pnas.0913213107>
- Via Campesina (2003) *Food SovereigntyI Explained*. <https://share.google/FfDi71PxB9BDFI64>
- Waithaka, S. (2023) Effects of Agriculture on the Environment in *International Journal of Agriculture*, Vol. 8, Issue 1, No. 2. Pp 10-20.

WHO (2025) Obesity and Overweight <https://www.int/news-room/fact-sheets/detail/obesity-and-overweight>.

Wittman, H. (2023) Food Sovereignty: An inclusive model for feeding the world and cooling the planet. *One Earth*, Vol. 6, Issue 5, 19 May 2023. Pp474-478.

Reports

FAO, (2017) *The State of Food Security and Nutrition in the World, 2017*.

FAO, (2018) *The State of Food Security and Nutrition in the World 2018*.

International Labour Organisation(2020) Spotlight on Work Statistics, 2019. https://ilo.org.wcms_696387

International Labour Organisation (2021) COVID-19 and the World of Work, 7th edition. https://www.ilo.org.wcms_767028

IPCC (2019) *Special Report on Climate Change and Land* IPCC

National Food Security Portal<https://nfsa.gov.in/portal/NFSA-Act>

The State of Food Security and Nutrition in the World, 2020 (Food and Agricultural Organisation) <http://www.fao.org/publications/sofi/2021/en/>

UNICEF (2021) Nutrition. Retrieved from <https://data.unicef.org>

United Nations in India (2021). Nutrition and Food Security. Retrieved from <https://in.one.un.org/un-priority-areas-in-india/nutrition-and-food-security/>

UN Department of Economics and Social Affairs Sustainable Development Goals, retrieved from https://sdgs.un.org/sites/default/files/2020-07/SDO2020_Book.pdf.

USDA,(2021).Food Security in the U.S.- Definitions of Food Security Retrieved from <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx>

United Nations Population Division (UNPD) 2019. Retrieved from <https://www.un.org/development/desa/pd/sites/>

United Nations Department of Economic and Social Affairs, Population Division (2024). *World Population Prospects 2024: summary of Results* (UN DESA/POP/2024/TR/NO.9)

World Bank (2020). Poverty and Shared Prosperity Report, 2020