

Food Security: A Primer

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ABSTRACT: Food is essential to the survival of the human race. Reducing hunger and achieving food security have been the major concern of national governments as well as international organizations. Food security is year-round access to an adequate supply of safe and nutritious food. The components of food security include availability, access, utilization, and stability. These four pillars must be met to ensure food security. This paper provides a short introduction on food security.

KEY WORDS: food security, food insecurity, food systems

I. INTRODUCTION

Food is a basic, global necessity affecting public health and well-being of people. The lack of food security is a major problem faced by many nations. It is a critical factor in avoiding hunger, poverty, and deprivation. National governments as well as international organizations are concerned about food safety, food security, and food insecurity, which are major challenges in the world. Food safety is the discipline that describes handling, preparation, and storage of food in ways that prevent food-borne illness. Food security occurs when all people in a community have access to sufficient, safe, and affordable food. Food secure individuals and households do not have to resort to begging, stealing or scavenging for food. In contrast, food insecurity occurs when there is a lack of access to enough good, healthy, and appropriate food. Food insecurity is a global challenge affecting over one billion people. The consequences of food insecurity include poverty, hunger, malnutrition, and quality of life [1].

Food security is a fundamental human right. It means that you are not worried about when the next meal is coming, nor do you need to cut back on food in order to pay the bills. Governments around the globe have a moral responsibility to feed the people under their jurisdiction through food self-sufficiency, which is the nation's ability to provide basic food for its citizens. Meeting the increasing demand for food is potentially constrained by several factors such as climate change and water scarcity. Although sustainable agricultural food production is a global concern, the impact of food insecurity will be more pronounced in developing nations [2]. Food security can be achieved by increasing food production (cultivating cash crops and rearing livestock) and food diversity.

The concept of "food security" is relatively recent; it originated in the mid-1970s. Since then, the concept has become progressively more relevant. It is related to food insecurity, which refers to missing meals or reduction in the quantity and quality of food intake due to financial constraints. The two concepts are related in USDA's description of the ranges of food security [3]:

- High food security
- Marginal food security
- Low food security (food insecurity without hunger)
- Very low food security (food insecurity with hunger)

II. WHAT IS FOOD SECURITY?

People are regarded as food secure when they have continuous access to safe and nutritious food to maintain a healthy life. People are food secure when they do not live in hunger. The global food security system is dominated by the United Nations (UN). The UN Food and Agriculture Organization (FAO) identified the four pillars of food security as availability, access, utilization, and stability [4]. They are illustrated in Figure 1 [5] and explained as follows.

- *Food availability:* This pillar refers to the amount of food in a community either through domestic production or importation. It is the overall abundance of food at local and global levels. Food must be available in sufficient amounts. Food security is the availability, at all times, of an adequate world supply of basic foodstuffs. Diseases affecting livestock or crops clearly can have a great impact on food

availability. The right to food is an international human right which imposes a duty of the state to provide for its citizens when they are unable due to factors beyond their control. Being sure that there is adequate supply of food reduces stress and other adverse health outcomes.

- *Food access:* Food access refers to the affordability and allocation of food. People must have access to food in sufficient quantity and quality through purchase, barter, gifts, borrowing or food aid. Access incorporates reliability of supply to account for adverse situations and relies on the resilience of the people affected. A household is food secure when all members have reliable access to food to maintain active and healthy lives. In contrast, a household is food insecure if it has periodic inadequate access to food due to adverse weather conditions, political instability or unemployment. Poor access to food in developing nations is a pressing concern.
- *Food utilization:* This pillar refers to how well individuals utilize the food and nutrients that they can access. It is the proper biological use of food and water. Food utilization primarily falls under the discipline of nutrition. Effective food utilization depends on age, health, and disease as well as the quality of food intake. Diseases such as malaria, cholera, and diarrhea are known to undermine nutritional status and contribute heavily to malnutrition among children. In order to achieve food security, the consumed food must be safe and healthy. Food must have a positive nutritional impact on people.
- *Food Stability:* To be secure, food availability must be stable over time. Food stability refers to the ability to sustain food supplies and distribute them throughout the year. Natural disasters such as famine, drought, and flood result in crop failure and decrease food availability. An unstable food supply can compromise food security and put individuals at risk for health consequences. Inflation and spikes in food prices affect food security status of vulnerable consumers and push them toward poverty and food insecurity. Food stability may be at risk from climate change due to variability in growing conditions.

Food security represents a major indicator of economic and health disparities. Education, gender, technology adoption, land quality, and income are important variables affecting food security [6]. Other factors include population growth, environmental change, globalization, urbanization, food sovereignty, and demographic patterns. Prices of electricity, gasoline, petroleum, and natural gas determine cost of energy and transportation and may indirectly affect food security.

III. CHALLENGES

Global food security poses an enormous challenge with social and economic implications. The complexity of the concept of food security raises the challenge of measuring and addressing it. It is problematic when the phenomenon we wish to measure is not directly observable. In order to promote food security, it is important that we are able to measure it in a reliable way [7].

Global climate change and ozone air pollution are having a drastic impact on food security. In fact, climate change is regarded as a food security risk [8]. Climate change is likely to increase water scarcity in the coming decades and threaten the ability of some nations to compete in global food systems. Climate change will affect all four pillars of food security, namely food availability, access, utilization, and stability [9].

As the world population continues to increase, agricultural productivity will be tasked to keep pace without taxing environmental resources. Maize is one of the most important cereals for food security in some tropical parts of the world, especially in Africa, Asia, and Latin America. Climate change and changes in rainfall distribution will influence the production of maize in the tropics [10]. With the ongoing changes in climate, food insecurity is likely to become widespread. The solution to food insecurity in those regions of the world may not be food donations or food aids from richer nations, but in creating sustainable agricultural development in their backyards.

The available water supply directly affects food production and can ensure food security. Having sufficient water ensures crop growth and livestock survival. Water resources are under pressure to meet the needs of an increasing population. Increasing stresses on water resources may threaten food security [11].

IV. CONCLUSION

For several individuals around the world, food is a privilege, not a right. Food security continues to be a pressing economic and social concern. It is related to food problems which include poverty, famine, diseases, lack of fertile soils, climate change, and water scarcity [12].

Food security is a multi-dimensional, complex phenomenon. Food production and supply are important for food security. An increasing world population coupled with climate change creates pressure on global food systems workers including food producers, manufacturers, researchers, teachers, and policy-makers. Achieving food security is a major challenge of developing nations and is crucial to alleviating poverty.

For additional information on food security, one should consult [13] and other books on it available at Amazon.com. One should also consult journals exclusively devoted to food and related issues: Food Control, Food Security, Global Food Security, Journal of Food Security, Food and Energy Security, Agriculture & Food Security, and African Journal of Agriculture and Food Security.

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FOOD SECURITY



Figure 1. Pillars of food security [5].