Rajshahi University journal of social science and business studies **ISSN 2309-0898**
Vol. 28 (2020), pp 29-45

Evolution and Development of Food Security Concept: A Historical Overview

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Abstract

Food security is a multifarious concept that includes production, distribution, consumption, health, infrastructure, and many other issues. It is essential for the sustainable social and economic growth of a country. The food security concept has evolved in a sequential manner through the processes of defining, redefining, and reunderstanding in line with the time context. This paper attempts to understand the chronological development of the food security concept over the last five decades based on secondary sources and information. It analyses the major dimensions, i.e., availability, accessibility, utilization, and stability, and indicators of food security, along with policy initiatives taken by global bodies and international governance. It reveals that food availability does not always ensure the accessibility of food to all due to poor socioeconomic and physical conditions and malfunctions of the food distribution system. Food security is also a part of food utilization that covers food quality, nutritional aspects, and food choice. Finally, food security is determined by the stability of food availability, access, and utilization. From macro to micro levels (global, regional, national, and community), food security has been categorized by different sorts of indicators, assessments, and instruments, and it has drawn global attention to fight against famine, starvation, hunger, malnutrition, and food poverty. The paper concludes that is time to review conceptual understanding of food security to encompass the broader dynamics that affect food stability.

Keywords: Food security, food access, food policy, food system, dimensions, indictors.

Introduction

Food is the leading component of basic needs, and it has an immediate appeal to deep-rooted human feelings as it is a matter of life and death (Zhou, 2000). It is defined as any substance that people eat and drink to maintain life, growth, and body development (Gross et al., 2000; Gordillo et al., 2013). Food security is an integrated concept related to numerous social, cultural, political, economic, agricultural, environmental, and biophysical considerations that make multiple disciplines well-fitted for examining it. There is no single definition of food security but a complex weave of interrelated strands (Smith et al., 1992). A conceptual understanding of food security encompasses the broader dynamics of hunger, famine, poverty, starvation, and malnutrition (Clapp et al., 2022). The concept ranges from food availability to equitable distribution at the local and global level. It embraces availability, sufficiency, affordability, nutritional quality, safety, acceptability, sustainability, cultural adaptability, and preference (Wahlqvist, 2009; Wahlqvist and Kuo, 2009; Worldwatch, 2011). It is recognized that food availability, though essential, does not ensure food security for all due to individuals'

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lack of social, economic, and physical access to food. Food utilization focuses on the health, hygiene, preference, and sociocultural aspects of food security. In addition, the socioeconomic and cultural issues, including food taboos, gender identity, and time and space, are exclusively related to food security. Finally, a nexus between the different components at all times is urgently needed to ensure food security.

There have been many attempts to define and redefine food security as a concept throughout history. The idea of food security has evolved over the last few decades since its first formal introduction in the early 1970s (Clapp et al., 2022). The concept was perceived as an inter-governmental issue through the activities of the League of Nations, the United Nations (UN), the Food and Agricultural Organization (FAO), the World Bank (WB), the World Health Organization (WHO), the International Monetary Fund (IMF), and the International Trade Organization (ITO). As a matter of global governance, food security was first visible in the 1930s through the activities of the League of Nations (Salvatici, 2015). The malnutrition and epidemics caused by World War I increased the mortality rate, and international aid programs were one of the most essential means for stabilizing food security. The economic recession in the 1930s recognized the need for international cooperation to bring about food security. Later, the US President's Four Freedom Declaration in 1941, the UN Conferences on Food and Agriculture in 1943, the FAO Conference in Quebec in 1945, and the United States Nutrition Conference in the 1940s drew the attention of world leaders to the need to ensure food security for the entire population of the world. Subsequently, the World Food Survey report, the formation of the World Food Board (WFB) and World Food Bank (WFB), the concept of the World Food Reserve (WFR), and the World Food Program (WFP) worked for food security in line with trade barriers, economic food security, food market fluctuations, food aid, food loan, famine prevention, health, and malnutrition, among many other areas. Finally, in 1974, the World Food Conference outlined the concept of food security, reflecting the issues of food availability, sustainable food consumption, and price stability. Later, the concept was extended by adding the matter of physical and economic access to food. Finally, the concept of food security was reshaped at the 1996 World Food Summit, comprising the components of food availability, access, utilization, preference, and stability. In line with the summit declaration, the Integrated Food Security Phase Classification (IPC) notes sequentially: "Food must be available; households must have access to it; they must utilize it appropriately and the whole system must be stable" (IPC, 2019:29). Other studies also explicitly stress a hierarchical order of food pillars, seeing availability as necessary but not sufficient for access; access as necessary but not sufficient for effective utilization; and stability as a cross-cutting factor that is necessary for others to hold (Webb et al., 2006; Upton et al., 2016).

At different times, comprehensive reviews have provided a broad outline of food security dimensions and indicators. Availability is the leading component of food security, and is achieved when sufficient food is ready to have at people's disposal (Gross et al., 2000). But it is claimed that food availability does not ensure food access because of the poor socioeconomic conditions of certain groups of people. Food entitlement, right-to-food, and

food sovereignty approaches indicate that proper food distribution by the state can ensure food access for all people (Sen, 1981; Maxwell, 1996; McMichael, 2004). The access dimension of food security, focused by Sen in 1981, was formally recognized in 1996 and put into practice by food security practitioners (Simon, 2012). Food needs to have an acceptable quality with essential nutritional ingredients. Food utilization is based on the quality and safety of the food, and how well people transfer it from food to nutrition and energy (Manap, 2020). It encompasses food processing and practice, storage, health behaviour, nutrition, sanitation, childcare and food culture. Long-term gains in availability, access, and utilization ultimately determine food stability. Food availability cares more about food supply for today, while stability cares more about food availability in the future (Zhou et al., 2017). In line with the noteworthy dimensions of food security, food preference deals with the social and cultural acceptability of food and makes a link between food, religion, gender, social practice, family types, ethnicity, and festivals. Gross et al., (2000) suggested that food security is achieved when food is satisfactory in quantity, quality, safety, and sociocultural acceptability.

This article reviews the conceptual understandings of food security, encompassing different dimensions and indicators. It makes a chronological review of the evolution of the concept of food security over the last few decades. It also provides a brief overview of the initiatives undertaken by international organizations, such as the League of Nations, the UN, the FAO, and the WB to promote food security. Lastly, it takes an attempt to reveal the strengths and weaknesses of all these components and indicators using food security lenses.

Definitions of Food and Food Security

Food is the foremost component of basic needs and helps to maintain proper health by preventing and curing diseases. Nobody can survive in the long run unless they have enough nutritious food. In a conventional understanding, food is derived from plants and animals that help the physical absorption process by providing proper food value and nutritional support (Mahmud, 2018). As a nutritional matter, food provides protein, vitamins, carbohydrates, fat, minerals, and other essential micronutrients. It is comprised of both animal and vegetable products, such as meat, eggs, dairy products, cereals, vegetables, and sugar (Zhou et al., 2017). The WHO and FAO define food in a physiological sense as ‘nutritive material taken into an organism that fulfills needs for maintenance, growth, work, and tissue repair’ (WHO and FAO, 1974).

Food has different values other than providing life-supporting energy. Eating and drinking have a value that goes beyond feeding and watering (Telfer, 1996). It is also a part of an individual’s identity, where he or she is constructed biologically, psychologically, and socially through food behaviour (Fischler, 1988). It is highly related to socio-cultural concepts that include religion, gender, class, caste, stratification, and age. It is also linked to our common psycho-social issues, such as mental stress, illness, consciousness, fear, anger, pleasure, cooperation, conflict, sleeplessness, and aspiration (Mahmud, 2018). In the economic sense, food concerns production, distribution, demand, supply, market, consumption, and the food system as a whole.

From the above discussion, major features of food can be shown as follows:

- **Survival dimension:** Without food, none can survive for too long. It is needed to keep the body alive and fit, for movement and warmth, and for growth and repair of tissues.
- **Nutritional dimension:** Food provides essential nutritional elements for sound physical and mental well-being.
- **Socio-cultural dimension:** All edible and nutritionally satisfactory foods are not socially and culturally accepted.
- **Economic dimension:** Food is also an economic concern. One has to pay to get it from the market. Variations in food price also depend on the demand and supply chain in the market.

Several theories, approaches, and discourses, from classical to post-modern, explain the issues of food security in line with hunger, famine, starvation, malnutrition, and food poverty. It is not easy to define food security by providing a single definition. It is estimated that there are more than two hundred definitions of food security (Smith et al., 1993). The International Food Policy Research Institute (IFPRI) listed around 200 definitions and 450 indicators of food security (IFPRI, 1999). Maxwell and Frankenberger (1992) sum up 194 studies on the concept of food security and 172 studies on food indicators. Finally, the concept of food security has evolved over the last century, especially in the previous fifty years, and the world has taken a more wide-ranging view of understanding food security, food policy, and nutritional well-being in recent times (Habiba et al., 2015).

Food security is mainly defined as the availability of food supply to feed the world's population. It concerns the supply side of food and access to it (Zhou, 2000). It is the adequacy of food supply through domestic production, imports, and foreign food aid. Reutlinger (1986:1) defines food security as "access by all people at all times to enough food for an active and healthy life". This emphasizes not only food availability and access issues, but also food utilization that focuses on the nutritional aspect of food. DeRose et al., (1998) noted that food insecurity includes food shortages, hunger, poverty, inequality, maldistribution, deprivation, mortality, and illness. Simelane (2020) revealed that food security can only be achieved when all people have physical, social, and economic access to adequate and nutritious food to satisfy their dietary needs. Food poverty exists when persons in particular countries cannot "obtain sufficient food to meet the nutritional needs of their members due to inadequate income, poor access to productive resources, inability to benefit from private or public food transfer or a lack of other entitlements to food" (Uvin, 1994:154). Norse (2003:365) stressed that "food security depends more on socioeconomic conditions than on agro-climatic zones and on access to food rather than the production or physical availability of food". Under the circumstances, food security is embedded in agricultural production, climatic conditions, national economy, politics, social structure, and international development.

Dimensions of Food Security

Food Availability

Food availability is the first and foremost basic criterion of food security. It is the supply-side estimation of food, and it expects the sufficiency of food to feed the entire

population. Generally, it is concerned with domestic production, stock levels, imports, and aid. Food availability is defined as the physical existence of food, either from farm production, purchase or import (Riely et al., 1999). According to FAO (2008), it is the net amount remaining after production, stocks, and imports have been summed and exports deducted for each item included in the food balance sheet. However, it is difficult to achieve food availability due to resource constraints and adverse climatic conditions. Nevertheless, relying on imports can help to achieve food security (Magnan et al., 2011).

At the micro-household level, land and other means of production, such as capital, labour, wages, knowledge, and skills, are the indicators of food availability, while at the national level food availability is a combination of internal food production, food stocks, commercial food imports, and foreign food aid. According to Habiba et al., (2015:4), "food availability is a simple mathematical calculation of whether the food available in a particular territory or country is sufficient to feed the total population in that territory, calculated from the local level agricultural population in that territory, stock levels, and net imports/exports." It is highly related to land ownership, cultivation patterns, food production, harvesting, the issue of staple foods, climatic variability, consumption, and population flows. This dimension also includes the availability and location of markets, physical infrastructure, food outlets, prices, quality, and variety of food (Lawlis et al., 2017). Food availability can also be measured by the precipitation record, food balance sheet, export-import ratio, food market survey, and production planet. Many natural variables, including climate change, among others, may influence food availability by reducing production (Lobell and Burke, 2010; Harvey and Pilgrim, 2011). Uvin (1994) noted that food security concerns shortages, poverty, and deprivation. But shortages should not be the sole focus of food security, however, for there is a global surplus of food availability, but it does not ensure food access to all people in the different corners of the world (Leathers and Foster, 1999; Lappe et al., 1998; Uvin, 1994). Thus, food insecurity exists in developing countries when individuals cannot obtain sufficient food due to inadequate income, lack of access to productive resources, inability to benefit from safety net programs and lack of other entitlements to food (Uvin, 1994). On the other hand, developed countries have surplus food production, which ensures the availability of food all the time for everyone. In addition, the factors that affect food availability negatively are poor agricultural knowledge, faulty economic policy, lack of foreign currency, lack of farming inputs, high population growth, climatic vulnerability, weak marketing and transportation systems, and so on.

Food Access

The concept of food security has been extended by adding the component of food access. It is the economic, social, physical, and political access of individuals to have adequate resources for getting sufficient food. Transportation, infrastructure, storage, marketing, and transformation of food commodities are all aspects of physical food accessibility. Thus, food security is interpreted as a product, not just food availability (Burchi and De Muro, 2016). Economic access encompasses income, expenditure, purchasing power of individuals to obtain appropriate foods through production and purchase (Habiba et al., 2015; Gross et al., 2000). Similarly, Simelane (2020) notes, the

availability of resources, such as capital, human mobility, and knowledge, determines food access. Food price, market access, food consumption, meal frequency, wage, and employment status are the indicators of food access, and it can be assessed by vulnerability assessment mapping (VAM), food access survey, food focus group discussion, and intra-household food frequency questionnaire (Habiba et al., 2015).

Sen's (1981) entitlements approach indicates that sufficient food production is not the only element of food security and food crisis can result from an individual's inability to access food. It is needed to establish the right of the common people to food access through the state's political and economic principles. The access dimension, highlighted by Sen in 1981, was formally recognized in 1996 and put into the discussion by food security practitioners after 2005 (Simon, 2012). Along with the entitlement theory, the right-to-food approach indicates that dignity, rights, acknowledgment, accountability, empowerment, and well-being should be considered in ensuring food access (Righettini and Bordin, 2022). Maxwell (1996) noted that the right to food approach requires the adoption of specific programs and the meeting of precise obligations to combat food insecurity. Ainger (2003:5), in line with food entitlement, defines food sovereignty as "the right of peoples, communities and countries to define their own agricultural, labour, fishing, food and land policies which are ecologically, socially, economically and culturally appropriate to their unique circumstances". Similarly, the UN Development Program (UNDP, 1994:27) asserts:

> It requires that people have ready access to food—that they have an "entitlement" to food, by growing it for themselves, by buying it or by taking advantage of a public food distribution system. The availability of food is thus a necessary condition of security—but not a sufficient one. People can still starve even when enough food is available—as has happened during many famines.

Food Utilization

Food utilization is concerned with what and how people eat. From a biological standpoint, food security refers to the ability of the human body to ingest and metabolize food (Gross et al., 2000; Simelane, 2020). Food must be of acceptable quality and contain basic nutrition; otherwise, its functions are not fulfilled, and it may even cause illness and disease (Zhou, 2000). Habiba et al., (2015) notes that food's nutritional outcome is appropriate and optimum only when the food is prepared accordingly. A country achieves food security by ensuring adequate food and nutritious diet for the entire population. Food utilization meets all sorts of human physiological needs and takes into account of clean water, sanitation, health care, cultural considerations, social environments, storage, and cooking skills (Lawlis et al., 2017). According to FAO (2008:21):

> *It encompasses the nutritional value of the diet, including its composition and methods of preparation; the social values of foods, which dictate what kinds of food should be served and eaten at different times of the year and on different occasions; and the quality and safety of the food supply, which can cause loss of nutrients in the food and the spread of food-borne diseases if not of a sufficient standard.*

Thus, food utilization is concerned with food habits, preparation, processing, storage, cleanliness, and a healthy environment. Stunting rate, wasting rate, prevention of

diarrheal diseases, latrine usage and weight for age, anemia, and night blindness are the indicators of food utilization. These can be assessed by demographic and health surveys and immunization charts.

Food Stability

Food security is ultimately determined by the stability of food availability, access, and utilization. It refers to the time in which food security is being considered (Weingartner, 2004). There is a prevailing possibility of losing or gaining food security over time and space (USAID, 2007). Even optimum food consumption may be vulnerable if access to food cannot be sustained as long as needed (Simelane, 2020). Scanlan (2009) noted that food stability reflects the ability to cope with temporary shocks that restrain food shortages, poverty, and deprivation. Therefore, communities, households, and individuals should have continuous access to food. But in many cases, it is hindered by the vulnerability and risk factors associated with food production, distribution, and processing. Finally, economic recession, adverse climate, production fall, market fluctuation, business monopoly, profit maximization, extreme commodification, lack of community support, internal conflict, and political instability are the major factors that affect food stability. Therefore, food stability is a critical component that deals with a sound synchronization between the different dimensions of food security.

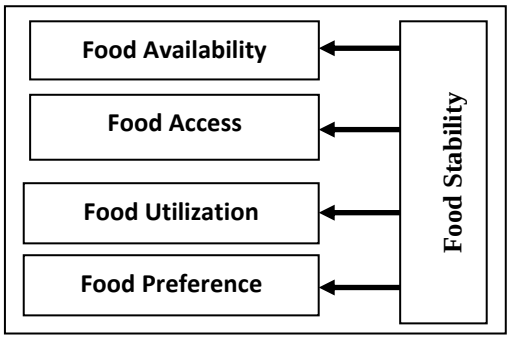

Figure 1: Food Security Dimensions

Food Security at Different Levels and Institutions

Food security can be understood at different levels of social and political institutions, ranging from individual to global. The macro dimension centers on global, regional, sub-regional, and national food security, while state, province, district, and city within a country are covered at the meso dimension, and community, household, family, and individual are covered at the micro dimension. Thus, the relevance of political and socio-organizational dimensions from macro to micro stresses the interaction and interdependency to ensure food security. The different dimensions of food security vary in their nature, causes, and effects at the macro, meso and micro-level. Weingartner (2004) identified the macro, meso, and micro-level food security as follows:

Macro: World, sub-region, regional and national food security;
Meso: Province/city, district/town, village food security; and
Micro: Household/family and individual food and nutrition status.

At the macro-level, a nation or even a region or sub-region can be considered 'food secure', while an individual, household and community within that territory may not have access to food (Simelane, 2020). Similarly, Gross et al., (2000) discovered that food may be available throughout a country but not in certain disadvantaged districts or population groups. Likewise, there may have a surplus of food production at the global level, but that does not ensure food access for all countries. At the macro-level, food availability is related to land, soil quality, climatic variability, population growth, and production fall or rise. It can be assessed by weather prediction, precipitation records, food market survey, national, and global food balance sheets. Moreover, national food availability depends on food supply, and food accessibility depends on food demand. The VAM, developed by WFP, is used to analyze the vulnerability of target groups to food insecurity. Food price, per capita income, wage, consumption, and meal frequency are the macro-level indicators of food accessibility. Similarly, well-being, food behaviour, stunting, and washing rate are the indicators used to assess food utilization. The periodical Demographic and Health Survey (DHS) and health surveillance report at the global and national levels produce health data for global and national policy design to work for food utilization. The various indicators of food stability include economic recession, climatic vulnerability, production decline, inflation, and regional disparities. The Global Information Early Warning System (GIEWS), developed by FAO, provides relevant information on food insecurity and instability (Simelane, 2020).

At the meso-level, land ownership pattern, production area, harvesting time, agricultural ingredient price, seasonal rainfall, cultivation pattern, labor cost, staple food production are the indicators of food availability. Food market survey and qualitative study tools, i.e., focus group discussions, participatory rural appraisal, and rapid rural appraisal provide information on food availability and access. The district health survey or report and the community surveillance report can be used to track health outcomes related to food consumption. Finally, at the micro-level, the agricultural production plan, household food frequency, items of food, food calorie, immunization chart, food preservation, food storage, chronic poverty, illness, age burden, family members, weighing charts of children, and health status of pregnant women are used to assess the availability, accessibility, utilization, and stability of food.

The Concept of Food Security in Development Agenda

Food security has been a primary focus throughout history. The concept has evolved in theory and practice, as it has been defined, redefined, and rebuilt. Before a formal outline of the concept, terms such as famine, hunger, food scarcity, and starvation are commonly used to describe food problems (Simon, 2012). After World War II, food security was addressed as a special issue within the manifested agenda of the UN and its allied bodies. Moreover, the concept has been reshaped through the analysis of FAO officials, World Bank documents, and world food conferences. But it was noticed that the concept of food security could be traced to well before that time and it was borrowed, regurgitated, and built on numerous age-old ideological and philosophical foundations (Gibson, 2012).

Table 1: Indicators and Assessment Instruments of Food Security at Different Level

Level		Availability	Accessibility	Utilization	Stability
Macro	Indicators	Global and national food production, stock, trade, food supply, soil-water quality and quantity, Fertility rate, population growth, land ratio, cultivation pattern	Food demand, food stamps program, food price, market access, Per capital income and food consumption, meal frequency, national wage standard, and employment	Wellbeing, food habit, preference, immunity, immunization, health behavior, safe drinking water, safe motherhood, child health and mortality, stunting rate, wasting rate, Low Birth weight (LBW) rate	Policy advise, saving and loan, Economic recession, price fluctuation regional disparity, production fall, disaster, market fail, social instability, conflict, nuclear family, urbanization, monopoly
	Assessment Instruments	Climate and weather forecasting, precipitation record, food balance sheet, food balance sheet, food market survey, agricultural production planet	Market, infrastructure, Information, Food right, entitlement, Food price, inflation Purchasing power, Vulnerability Analysis and Mapping (VAM), national food security policy and program	National Demographic and Health Surveys, Health surveillance, Family planning program, immunization,	Global food security Record, food policy, National budget and allocation, social safety net, Global Information Early Warning System (GIEWS)
Meso	Indicators	land ownership patter, Production area coverage, harvesting time, availability and price of production ingredients, cultivation pattern, labor cost, staple food production	Market and retail food price, school feeding program	Latrine coverage, regular and seasonal diseases, diarrheal diseases	Pre-/post-harvest Food, women's BMI

	Assessment Instruments	Food Market Survey, local govern initiative, staple food production	Community planning, food Focus Group Discussion, participatory rural appraisal (PRA), rapid rural appraisal (RRA)	District health survey, community clinic services	Anthropometric Survey in Children
Micro	**Indicators**	Land ownership pattern, types of land, availability of seed, fertilizer, Seasonal Agricultural Production, food storage, family labor, community support	Meal frequency, food frequency, gender disparity, family member dignity, employment status	Malnutrition, weight, frequency disease, food choice, food taboo, latrine construction, Weight-for-age goiter anemia	Pre-harvest food Practices, migration, resources transfer, social capital, community assistance
	Assessment Instruments	Agricultural Production Plan,	Intra-household Food Frequency Questionnaire	Immunization chart, food preservation	Food storage, chronic poverty, illness, age burden, family members, Weighing Chart of Pregnant Women

Source: Gross et al., (2000); Weingartner (2004); & Authors' contributions.

There were numerous mentions of the term “food security” prior to World War I. On the one hand, food security was addressed in line with the issues of food production, distribution, and supply channels (Cronier, 2021), drought, flood, harvest failure, infestation of pests, “excessive milking of the agricultural cow” (Mehta, 1929), acts of nature (Hutchinson, 1998); on the other hand, it was also concerned with the concept of the whims of Gods, the punishment of kings, and (Mehta, 1929). It was perceived as an inter-governmental issue after the War. The League of Nations urged all states to ensure global food security by rationalizing food production and exchange for the benefit of both producers and consumers (Shaw, 2007). In the early 1930s, the great economic recession reduced the purchasing power of consumers and the incomes of primary producers, which recognized a need for international attention to food problems (Zhou, 2000). At the same time, the chronic malnutrition and epidemic drew global attention to the need to work for food security (Gibson, 2012) and led to a nexus between production, aid, and redistribution of surplus food. The League of Nations published World Hunger Statistics in the 1930s, and subsequently, its Health Division produced a report on the nutritional and public health status of poor countries. Both of these reports made a policy stand for international collaboration in addressing food insecurity and food policies. The US President, Franklin D. Roosevelt, urged ‘freedom from want of food’ under the four freedom declarations (freedom of speech, freedom of worship, freedom from want, and freedom from fear) in 1941 (Phillips, 1981). This announcement made a significant contribution by assembling world leaders to work together against food insecurity. The UN Conference on Food and Agriculture in 1943 at Hotspring in Virginia also focused on secured, adequate, and suitable supply of food for everyone (United Nations, 1943). After two and a half years of preparatory work by the Interim Commission, the FAO was established in 1945 at the Conference in Quebec, Canada. The purposes of FAO were to: (i) raise the levels of nutrition and standards of living of the people in their respective jurisdictions; (ii) secure improvements in the efficiency of the production and distribution of all food and agricultural products; (iii) improve the condition of rural populations; and (iv) contribute toward an expanding world economy (FAO, 1945).

Later, FAO, just after its establishment in 1945, organized a series of conferences on food security, and the United States Nutrition Conference, among others, was the noticeable one that affirmed conquering hunger for democratic countries. Subsequently, FAO produced the World Food Survey report in 1946, and proposed to establish the WFB to eliminate hunger through the integration of health, nutrition, agriculture, and trade. Following the establishment of the IMF in 1945 and the ITO in 1948, numerous proposals were made to reduce trade barriers in global food security (Zhou, 2000). But it does not work accordingly due to the little attention given by FAO in this regard (Shaw, 2007). Later, the World Food Reserve (WFR) concept was introduced as a mechanism to fix momentary food insecurity. But the governments of different countries rejected the WFB and WFR proposals due to their subsidized food supply policies.

In the 1960s, it was acknowledged that food aid might be a barrier to the development of self-sufficiency, and the concept of “food for development” was introduced. The

formation of WFP in 1963 was a prominent example of the institutionalization of the 'food for development' framework (Righettini and Bordin, 2022). During this turmoil, World Food Bank (WFB) was established and it offered loans to food-importing countries to buy food (Zhou, 2000). WFB also addressed the issues of better nutrition, famine prevention, and food reservation. In the 1970s, global agricultural production fell drastically, which led to the first World Food Conference in 1974 in Rome. The conference defined food security as "the availability at all times of adequate world food supplies of basic foodstuffs, particularly so as to avoid acute food shortages in the event of widespread crop failure, natural or other disasters, to sustain a steady expansion of food consumption in countries with low levels of per capita intake and to offset fluctuations in production and prices" (United Nations, 1975:14). This definition reflects the issues of sustainable food consumption and food price stability that were very much concerned in the world food market. During these periods, different sorts of food security insurance schemes were introduced (Gross et al., 2000). The quantity and stability of food supply lie at the center of these schemes, which are based on the belief that increasing production and improving distribution patterns could resolve food insecurity (Paulino and Mellor, 1984).

In the 1980s, the success of the green revolution had a positive impact on food availability, and it was also noticed that food crises were not caused by disastrous shortfalls in food production as by sharp declines in the purchasing power of vulnerable social groups (Gross et al., 2000). It was noted that market fluctuations affected food consumption and hinted at both food access and stability (Clapp et al., 2022). Therefore, the concept of food security included both physical and economic access to food supply. Thus, the FAO extended the definition of food security in 1983, stating that "ensuring that all people at all times have both physical and economic access to the basic food that they need" (FAO, 1983). This definition clarifies that food security should be balanced between availability, access, demand, and supply. The World Bank's (1986) report on poverty and hunger focused on the temporal dynamics of food security. It classified food insecurity into two types: chronic food insecurity associated with ongoing poverty problems and transitory food insecurity caused by natural and man-made disasters, economic downturn, political conflict, and internal conflict (Zhou, 2000). This understanding of food security is further extended as "access by all people at all times to enough food for an active and healthy life" (World Bank, 1986:1). The World Bank report, complemented by Amartya Sen's theory of rights and entitlement, showed how famines flourish even without food shortages (CISS, 2013; Maletta, 2014). Sen (1981) emphatically highlighted the importance of access in exploring how famines continue to emerge even in contexts of widespread food availability. In this context, food security is highly concerned with a person's entitlement to food, ownership of land and assets and employment status. Similar concerns were highlighted in the early 1980s in a FAO report that stated that "food security should have three specific aims: ensuring the production of adequate food supplies, maximizing the stability in the flow of supplies, and securing access to available supplies on the part of those who need them" (FAO, 1982:9).

Table 2: Chronological Development of Food Security Indicators

Decades	Focal points
1920-1940	Food production and exchange, economic recession and its aftermath, world hunger statistics, world food reserve; control price fluctuations, and constructively use accumulating food surpluses;
1940-1960	Four freedom declaration (freedom from want), hunger campaign, food for development, world food board, world food reserve, world food programs, reduce trade barrier, food availability;
1960-1980	Global food crisis, food availability, access, stability, food assurance, price fluctuation, green revolution;
1980-2000	Entitlement, right to food, poverty and hunger, social, economic and physical access to food, food utilization, food preference, health and hygienic, food in gender;
2000 – onward	Eradicate extreme poverty and hunger, zero hunger, freedom from hunger and malnutrition;

*Authors' contribution

In the mid-1990s, food security was broadened to incorporate food safety, nutritional balance, protein-energy, food composition, hygiene, healthy lifestyle, and food preference (FAO, 2002; Grover, 2010). These issues were emphasized at the International Conference on Nutrition in 1992. In 1996, the World Food Summit in Rome finally redefined the concept as "food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life" (FAO, 2001:49). Later on, this definition was slightly updated by adding the word 'social'. However, over time, a large number of different forms of definition have been offered. The 2009 World Summit on Food Security reconfirmed the concept of food security by adding the four components of availability, accessibility, utilization, and stability. To date, this definition is more comprehensive and integrated across different societies and states. This definition covers different dimensions and components of food security, including food sufficiency, temporality and shocks, access to food, sufficient quantity and quality of food, cultural acceptability, as well as linking the definition of food security to productivity outcomes.

Critical Observation

Food security dimensions mostly focus on availability, access, utilization, and stability. All these dimensions are broadly tied to production, consumption, and health-centered understanding of food security. However, there are other issues that should be considered for a comprehensive understanding of the food security framework. The major dimensions have gone through a macro-level analysis that focuses on global, national, and sub-regional food security issues. It went unnoticed at the household and even individual levels. There are different forms of food insecurity and its structural aspects, i.e., chronic, cyclical, and transitory, that should be analyzed in a formal outline

to reflect social, economic, and food system volatility. Food security is also concerned with food preference that explores the sociocultural, political, economic, and psychological factors influencing food production, distribution, and consumption. Food items in one society are taken for granted, while the same foods are classified as non-food in another society. As a result, food security includes a wide range of socio-cultural dimensions such as religious sacredness, gender, class, inequality, age, ethnicity, rural-urban differences, inclusion-exclusion, likes-dislikes, festivals, division of labor, and so on. It also concerns knowledge, habits, decision-making process, family types, household heads, and food distribution methods. It reveals that food security can be achieved only when sufficient culturally adapted food is available within households and communities to meet their biological and social needs. Food choice and dynamics need to be examined more deeply, and they play a vital role in the process of food sustainability, including the welfare, health, and productivity of community members. The economy is the base structure of society and plays a vital role in the production, distribution, and consumption of a society's goods and services. In this regard, food security should be addressed in line with common people's income generation activities, demand and supply, market monopoly and monitoring, food price, and purchasing power capacity.

From environmental and ecological point of view, food security must be compiled with the harmony of bio-diversity, climate change, interactions, interdependency, and sustainability. The impacts of climate change along with the losses of agricultural productivity will adversely affect the whole food supply chain and different dimensions of food security. In addition, climate variables also have an impact on physical and human capital such as roads, storage and marketing infrastructure, houses, productive assets, and human health, which indirectly change the economic and socio-political facts that govern food access and utilization and can threaten the stability of food systems. Current knowledge of the impact of climate change on food security is dramatically lacking in coverage across all dimensions of food security. The existing literature on climate change and food security has only been able to focus on the impacts on food availability, without quantification of the likely important climate change effects on access to food, food stability (vulnerability), food utilization (safety and nutritional value), and community support systems ensuring food. To ensure food security for all, it is essential to work with the spirit of the right to food, the need-based principles, and the food sovereignty approach. In this regard, the state is mainly responsible for providing all sorts of logistical support, latent functions, monitoring and controlling the market, distributing public food, and subsidizing agricultural commodities.

Conclusion

Food security is a broad and complex concept that is determined by the interaction of social, political, economic, environmental, agricultural, geophysical, and biophysical factors. It is also an issue of national security, agricultural production, rural development, poverty alleviation, nutritional status, public health, and the general welfare of the entire population. Food security has never been a static concept. There are numerous ways in which food security is defined, viewed, and addressed. It primarily concerns the availability and supply of food, but over time, the concept has expanded

with the accumulation of access, utilization, and stability. But in a real sense, food security is not confined within the above-discussed dimension. The concept could be more nuanced and refined through the intervention of new knowledge and interpretation produced from research, practice, and world events. It is needed to recognize the root causes of food security related to social structure, culture of poverty, inequality, social justice, and equitable distribution. It is necessary to have institutional guarantees, a legal framework, and political commitment for sustainable food security. Finally, a comprehensive conceptual framework is essential to take into account food security for the present, the near future, and the longer term.

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