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FOOD SECURITY THROUGH SUSTAINABLE DEVELOPMENT PRCTICES AND NUTRITION

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ABSTRACT

Sustainable development, by now we know, is a process of integrating economic, social, and environmental objectives. For a healthy and productive life, everyone should have sufficient access to nutritious and affordable food. The relationship between sustainable development and food security is highly complex and has assumed greater significance in the present times. The very notion of sustainability in food production systems including agriculture, livestock and fisheries is intrinsically linked to the idea of adequate food accessible for both present and future generations. To ensure long-term food security, application of the principles and core values of sustainable development in food production systems is important. Similarly, the way and manner in which agriculture is being practiced, including land and water use, has immense impact on ecological sustainability.

Sustainable development, you must have gathered by now, is a new developmental paradigm. It redefines human and environmental interactions in the 21st century. It is a kind of developmental process that enables the present generations to meet their needs, without compromising the ability of future generations to meet their own needs including food. One of the essential needs of people is the need for food, and is being considered as a basic human right. Food apart from providing sustenance to people is also used in various human expressions of culture, social systems and religious beliefs.

Food security is defined as a situation in which all people, at all times, have physical, social and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Although, at the global level, there has been a significant

progress in increasing the average food consumption over the last 30 years, there are some 840 million people still, who are chronically undernourished, mainly in the developing countries due to various reasons, including the problems related to sustainability of food production systems.

The steady and unprecedented increase in human population in developing countries has caused food shortages, and put stress on the available natural resources. Impoverishing the natural potential of the ecosystems reduces agricultural yields, which affects the food security of the people living in these areas. The shortage of cropland is a significant factor contributing to global food shortages and associated human malnutrition and hunger. For example, in Africa, there has already been a decline in agricultural output and thus, there is a threat to food security. Increasing world food production without compromising the ecological sustainability is a huge challenge. This study will discuss the meaning and dimensions of food security and bring out the interconnection between sustainable development and food security.

KEYWORDS: Food Security, Hunger, Malnutrition, Shortages, nutritious food , Availability and stability.

CONCEPT AND EVOLUTION OF SUSTAINABLE DEVELOPMENT

Concept of Sustainable Development Sustainable development is a process of integrating economic, social and environmental objectives of development. The most popular definition of the term of sustainable development was coined by the United Nations Commission on Environment and Development in 1987.The Report of the Commission, Our Common Future, as we have read in almost all Units of this course, has defined sustainable development as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

This is the most frequently cited definition of sustainable development. It puts emphasis on two intrinsic ideas:

Concept of ‘needs’, in particular, the essential needs of the world’s poor; and

Idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet the present and future needs.

These ideas are the moral imperatives in fulfilling the urgent development needs of the world’s poor living in developing countries and the threat to continued progress as a result of the failure to respect environmental limits. Also, this popular definition of sustainable development proposes three new principles in the form of core elements:

Mutuality: Sustainable development recognizes that human beings affect the environment and are in turn affected by it;

Sustainability: Sustainable development acknowledges that human interactions with the environment must be sustainable in the long -run; and

Integration: Sustainable development implicitly accepts the interconnections among environment, social development and economic development.

Evolution of Sustainable Development Since the 1990s, the concept of sustainable development has increasingly been endorsed by governments and agencies of United Nations. It has gradually emerged as a new international norm qualifying the kind of change that is to be regarded as authentic development. kind of events were:

i) United Nations Conference on the Human Environment (1972) The United Nations Conference on the Human Environment held at Stockholm in 1972 popularly known as Stockholm Conference became a key symbol of political acknowledgement of the growing worldwide awareness on the need and importance of protecting the environment.

ii) World Commission on Environment and Development (1983) World Commission on Environment and Development released its Report ‘Our Common Future’ which was also called the Brundtland Report in 1987 before it officially dissolved itself. The Report aimed to explore the conditions of the world’s natural systems and provide an outlook for global environmental health.

iii) United Nations Conference on Environment and Development (1992) The UN Conference on Environment and Development (UNCED), also known as the Earth Summit, renewed the world’s interest in sustainable development in 1992. This Summit was seen as a milestone in global environmental governance.

iv) World Summit on Sustainable Development (2002) The World Summit on Sustainable Development is the most recent event to highlight the importance of practical implementation of sustainable development. The Summit specified a number of commitments of the nations for implementing the principles of sustainable development and outlined the priority areas.

MEANING AND CONCEPT OF FOOD SECURITY

Now that we are clear about the concept of sustainable development, let us try to understand another term related to sustainable development, that is food security. The concept of food security is an unobservable variable with complex multifactored consequences. It has been used in nearly 200 different ways in numerous academic and policy discourses and it has 450 indicators. The definition of food security has evolved over a period of time. In 1974, food security was defined by the World Food Summit (WFS) as the “availability at all times of adequate world food supplies of basic food stuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices.” This was expanded by the Food and Agriculture Organization(FAO) in 1983 to include access of vulnerable people to available supplies.

By the mid-1990s, food security had become a major concern at a global level, and access to food now included sufficient food, indicating concerns for protein energy malnutrition. Later, this definition was further expanded to incorporate food safety, nutritional balance, and food preferences. In 1994, the United Nations Development Programme (UNDP) in its Human Development Report included food security within the concept of human security.

This reflected in the new definition of WFS (1996), which redefined food security as a situation that ‘exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life’. In 2001, this definition of food security was also modified a little by inserting the word 'social', as “a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”.

Today, the meaning and core concept of food security has significantly changed from focusing on the availability and stability of basic food supply at the national and international levels to accessibility of food supply at the individual household levels. Food security is not narrowly defined as whether food is available, but whether the monetary and non-monetary resources are available at the disposal of the population to access adequate quantity and quality of food.

Food Insecurity

Food insecurity is the involuntary shortage of food due to economic constraints. When this food shortage progresses to the point that physical symptoms are felt, hunger occurs. The conceptual understanding of food insecurity has gradually evolved over the years to include not only transitory problems of inadequate food supply at the national level, but also chronic problems of insufficient access and unequal distribution at the individual and household levels. There are many types of food insecurity:

Chronic Food Insecurity

This is usually a long-term phenomenon. This occurs when people are unable to meet their minimum food requirements over a sustained period of time. Low incomes and continuing poverty are mainly responsible for it.

Transitory Food Insecurity

This is a short-term and temporary condition of food shortage. This happens due to sudden drop in production or lack of access to enough food due to natural disasters, conflict or economic collapse.

Seasonal Food Insecurity

Seasonal food insecurity is just like chronic food insecurity. It has limited duration and can be seen as recurrent transitory food insecurity. It is relatively easier to predict because it follows a sequence of known events. It occurs due to seasonal fluctuations in weather, climate, cropping patterns, and diseases at certain times

DIMENSIONS OF FOOD SECURITY

Food security has four key dimensions: availability, stability, access, and utilization. These dimensions reflect the physical and economic access to food that meets people's dietary needs and preferences:

Food Production and Availability (is enough food produced)

Food production is related to the ability of food production system to produce sufficient quantity of food for people. This dimension addresses the supply side of the food security and expects sufficient quantities of quality food. Production of food is highly dependent on rainfall characteristics, combined with other factors including government policies related to provisions of agricultural inputs, pricing mechanism and ability to access the market. Food availability means that there is enough quantity of food available at all times. Food availability addresses the "supply side" of food security and is determined by the levels of food production, stocks and net trade.

Access to Food (can people get it and afford it)

An adequate supply of food at the national or international levels does not in itself guarantee household level food security. Food access is another dimension of food security, which encompasses income, expenditure and buying capacity of households or individuals. Food access

is related to the availability of required resources with people to obtain the amount of food needed for a nutritious diet. Food access addresses whether the households or individuals have enough resources to acquire appropriate quantity of quality food. It is also related to a situation, whereby food is allocated through markets and non-market distribution mechanisms. Access to food mostly depends on not only the physical criteria like infrastructure, but also the financial factors.

Food Utilization (how do local conditions bear on people's nutritional uptake from food)

Food utilization is commonly understood as the way the body makes the most of various nutrients in the food. In other words, it is the appropriate use of a variety of food items based on the knowledge of basic nutrition and care. Combined with good biological utilization of food consumed, food utilization determines the nutritional status of individuals. It addresses not only how much food the people eat but also what and how they eat. In fact, sufficient energy and nutrient intake by individuals is the result of good care and feeding practices, food preparation, diversity of the diet, intra household distribution of food, water, sanitation and health care practices.

Stability of Food Supplies (is the supply of food and its access ensured)

Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on food security status of individuals. This dimension of food security addresses the stability of the other three dimensions over time. Stability of food supplies could be affected by changes in food availability and access to food. People cannot be considered food secured until they feel so and until there is stability of availability, accessibility and proper utilization of food condition. In addition, stability of crop yields and food supplies is negatively affected by variable weather conditions.

RELATIONSHIP BETWEEN SUSTAINABLE DEVELOPMENT AND FOOD SECURITY

The unprecedented increase in population during the last half-century led to increasing food demand. The productive capacity of cultivated systems has stagnated or even declined in the face of increased food demand from growing populations. The shortage of cropland, together with falling productivity, is a significant factor contributing to global food shortages and associated human malnutrition and hunger across the world. To meet growing demands, massive transformation of natural ecosystems is needed. The single greatest land use by humans has occurred for the singular purpose of obtaining more accessible, reliable, and productive sources of food.

Food production systems face global challenges. These include meeting the growing demand for food, reducing poverty and malnutrition, and achieving environmental sustainability. The high prevalence of starvation, hunger, and malnutrition across the world, particularly in developing countries is related to sustainability of global agriculture production. Today, the world has around 852 million chronically hungry people. Feeding this growing population and reducing the prevalence of hunger adequately will only be possible if agricultural yields can be increased significantly. However, the demand for food has long since outstripped the capacity of nature to provide it. Therefore, the adoption of sustainable development approach is important to ensure long-term food security. The complex relationships between food security and sustainable development are influenced by the following issues:

Green Revolution

Low productivity in the agricultural sector has a huge impact that extends beyond the agricultural sector to food security and improved nutrition of children. Low productivity prevents households and countries from accumulating assets, diversifying their economies and making use of new technologies to move into higher value-added sectors. Low agricultural productivity is one of the

most important factors that contribute to food insecurity in Sub- Saharan Africa.

To meet the growing demand for food, in the early 1960s, green revolution was introduced through the rapid transfer and adoption of new technologies in the agricultural sector. This included the use of chemical fertilizer and pesticides, irrigation technology, mechanization of farms and new high-yielding seeds. The green revolution, a kind of shift from traditional to more modern agricultural methods, substantially reduced the risks of mass starvation and famines in the developing world.

Globally, the green revolution, while increasing agriculture productivity at an unprecedented scale, proved to be ecologically unsustainable since it has disturbed the environmental sustainability and ecological balance. It has also led to loss of biodiversity and associated traditional knowledge. However, over the years, the environmental and social problems associated with high levels of inputs, monoculture systems, inefficient and polluting use of water, and the inability to reach many small farmers have come to the fore.

Loss of Biodiversity

For centuries, the agricultural base of developing countries were built upon the locally available natural resources, indigenous knowledge and traditional methods of agriculture production. Traditional knowledge of resource conserving farming practices aimed at producing and harvesting different crop varieties, livestock and fisheries. Basically, these practices are in harmony with the environment.

However, over the years, a number of essential nutrients of the land have depleted due to large-scale introduction of single crop under mechanized agriculture practice. As a result of shifting the agriculture practices from genetically diverse traditional food crops to high-yielding monocultures has resulted in the loss of nearly three-fourth of its food crop diversity. The practice of chemical intensive farming, as part of green revolution has led to problems of water pollution in streams and rivers from the runoff from fertilizers.

Depletion of Livestock and Fisheries

Livestock production has important implications for ecosystems and ecosystem services, as it is the single largest user of land either directly through grazing or 130 Health, Education and Food Security indirectly through consumption of fodder and feed grains. The global importance of livestock and their products is increasing as consumer demand expands with population growth, rising incomes, and urbanization. This rapid worldwide growth in demand for food of animal origin, with its accompanying effects on human health, livelihoods, and environment brings the issue of sustainable development to the forefront. Industrial livestock production, the most rapidly growing means of raising livestock, poses a range of pollution and human health problems.

Intensive livestock feeding systems has given rise to serious food safety and health concerns. Some marine fish stocks are already under threat of extinction due to over-fishing. For example, modern forms of pig and dairy farming also produced serious problems of water pollution. The rapid expansion and increased technological efficiency in fisheries, as well as the global state of the resources is causing widespread concern.

Desertification

Desertification is one of the greatest environmental and development problems of the 21st century. Desertification, as detrimental process brings about a gradual and an unnoticed reduction in the productive capacity of land over a period of years. The end point of this deteriorating and ecologically unsustainable process would lead to the formation of a complete wasteland incapable of producing anything useful for the community.

Many low income countries are located in tropical and sub-tropical regions, which are particularly vulnerable to rising temperatures, and in semi-desert zones, which are threatened by decreasing water availability. Large-scale droughts that affect several countries simultaneously have wider implications for food security.

Africa is highly susceptible to land degradation and it is estimated that two thirds of African land is already degraded to some degree. Currently, land degradation affects 65 per cent of the people in Africa. Sub-Saharan Africa will have not just the highest incidence of hunger and poverty, as before, but also more food-insecure people than any other part of the world, including the developing countries of South Asia.

For example, per capita agricultural production increased by about 40 per cent between 1980 and 2001 in developing countries, but fell by about 5 per cent in Sub-Saharan Africa over the same period, in large part due to land degradation and low access to modern agricultural inputs and technology. Most of the population in African countries is experiencing high-drought frequency since they are agro-pastoralists, whose livelihoods are constantly threatened by erratic rainfall and arid environmental conditions. These countries are among the poorest in the world and are extremely vulnerable to natural disasters and are struggling to cope with the impacts of droughts and famines.

Climate Change

Climate change has been identified as a ‘threat multiplier’ in global security, as it poses a threat to human security, particularly in societies that already lack significant progress in developmental sectors. Climate change worsens the living conditions of farmers, fishermen and forest-dependent people who are already vulnerable and food insecure. More frequent and intense, extreme weather will have adverse immediate impacts on food production, infrastructure for food distribution, livelihood assets and opportunities in both rural and urban areas. Loss of arable land is likely due to increased aridity, groundwater depletion and rise in sea levels, which will have significant impact on global food security.

Among various regions, Africa is considered the most vulnerable region in terms of climate change, because of its physical and socio-economic characteristics and its extreme climatic conditions. African eco-systems are very fragile and cannot absorb the shocks that climate change introduces. Agricultural production in many African countries and regions is projected to be severely compromised by climate change. Increased climate variability and droughts in Africa may lead to significant loss of livestock. Nearly 40 per cent of the Sub-Saharan population is currently undernourished and this number is expected to increase.

As a multi-dimensional phenomenon, food security reflects the highly interconnected concerns of food access, availability, and utilization, as well as the dynamic dimensions of ecological sustainability. Globally, the changed patterns of rainfall would have serious impact on food security. For example, climate change will have an overall negative effect on the yields of major cereal crops.

CONCLUSION

The concept of sustainable development derives from the fundamental concern of human society and its need for security. Sustainable development refers to a process of societal advance embodying a more equitable and environmentally aware pattern of development that requires a careful integration of economic, social, and environmental objectives. Food is one of the essential needs of people and a basic human right. Food security means access of the people to a reliable supply of food from socially acceptable sources sufficient for an active and healthy life. The very

notion of sustainability in food production system is intrinsically linked to the idea of adequate food accessible for both present and future generations.

Adequately feeding this growing population and reducing the prevalence of hunger will only be possible if agricultural yields can be increased significantly. However, the demand for food has for long outstripped the capacity of nature to provide it. Therefore, the adoption of the sustainable development approach is important to ensure long-term food security. The complex relationships between food security and sustainable development are influenced by various issues.

Globally, the green revolution, while increasing productivity at an unprecedented level, has proved to be ecologically unsustainable since it has disturbed the environmental sustainability and ecological balance. Livestock production has important implications for ecosystems and ecosystem services, as it is the single largest user of land, either directly through grazing or indirectly through consumption of fodder and feed grains. As a result of shifting the agriculture practices from genetically diverse traditional food crops to high-yielding monocultures has resulted in the loss of nearly three-fourth of the food crop diversity.

Desertification, as detrimental process brings about a gradual and an unnoticed reduction in the productive capacity of land over time. The end point of this deteriorating and ecologically unsustainable process would be the formation of a large wasteland incapable of producing anything useful for the community. We can say that food security reflects the highly interacting concerns of food access, availability, and utilization, which are the dynamic dimensions of ecological sustainability. Agricultural production in many African countries and regions is projected to be severely compromised by climate change.

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