



International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 9, Special Issue 1, April 2026



The Impact of Food Security and the Environment

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ABSTRACT: Food security, public health, and environmental sustainability are deeply interconnected, influencing the well-being of populations and the stability of ecosystems. Ensuring access to sufficient, safe, and nutritious food is essential for maintaining good health, yet challenges such as climate change, resource depletion, and pollution pose significant threats to global food systems. Environmental degradation, including deforestation, soil erosion, and water scarcity, directly impacts agricultural productivity and food availability, further exacerbating health issues such as malnutrition and disease outbreaks. Public health is closely linked to food security and environmental conditions, as inadequate nutrition and exposure to pollutants contribute to a range of health problems, including infectious diseases, respiratory disorders, and foodborne illnesses. Sustainable environmental practices, such as organic farming, efficient water management, and pollution control, play a crucial role in promoting both food security and public health. This paper explores the intricate relationships between food security, health, and the environment, analyzing the challenges and potential solutions for achieving a sustainable balance. It highlights the need for integrated policies, technological innovations, and community participation to address these pressing global issues. By adopting sustainable practices and strengthening health and food systems, societies can work toward a more resilient and healthy future.

I. INTRODUCTION

Food is at the center of human lives. Not only is food a condition for our existence, it is also at the basis of our cultural norms and social lives. Food production provides the livelihood for the 883 million people employed in the agriculture sector. As nature provides the foundation for plants to grow and animals to live, food is intrinsically connected to the environment. However, unsustainable food production and consumption practices have led to environmental degradation and exacerbated climate change. In return, food systems suffer from climate change, biodiversity loss and pollution. Learn more about these issues and the role of Geneva-based organizations to foster sustainable food systems below.

About Food Systems

The term “food system” refers to the constellation of activities involved in producing, processing, transporting and consuming food. Food systems touch every aspect of human existence. The health of our food systems profoundly affects the health of our bodies, as well as the health of our environment, our economies and our cultures. When they function well, food systems have the power to bring us together as families, communities and nations. But too many of the world’s food systems are fragile, unexamined and vulnerable to collapse, as millions of people around the globe have experienced first-hand during the COVID-19 crisis. When our food systems fail, the resulting disorder threatens our education, health and economy, as well as human rights, peace and security. As in so many cases, those who are already poor or marginalized are the most vulnerable. The good news is that we know what we need to do to get back on track. Scientists agree that transforming our food systems is among the most powerful ways to change course and make



progress towards all 17 Sustainable Development Goals. Rebuilding the food systems of the world will also enable us to answer the UN Secretary-General's call to "build back better" from COVID-19. We are all part of the food system, and so we all must come together to bring about the transformation that the world needs.

II. THE CLIMATE CRISIS IS A PRIMARY INTENSIFIER OF FOOD INSECURITY

Climate hazards will continue to increase the severity and frequency of disasters unless there is a major shift towards enhanced climate change mitigation, adaptation and disaster risk reduction. Humanitarian action (by definition) focuses on people affected by conflict and disasters, and their basic needs. Impacts on the environment – either related to the disaster itself or to the ensuing humanitarian activity – are often viewed as secondary. This can lead to environmental degradation and destruction, which can impede the long-term recovery of affected communities, many of whom depend on natural resources for their livelihoods.

Food security in a humanitarian context involves ensuring an adequate supply of food and meeting nutritional needs and cultural expectations, before and after a crisis. In this way, the environment, food security and livelihoods are co-dependent. If land is degraded or prone to natural hazards, less food is produced, and significant food shortages can occur. Interventions that focus on short-term benefits and neglect consideration of the environment can jeopardize long-term food security and livelihood opportunities and recovery.

Food Security

Climate change is expected to threaten food production, certain aspects of food quality, food prices, and food distribution systems on a global scale. Adaptation activities can reduce the health impacts of some of the anticipated food security challenges.

The concept of food security has evolved greatly over the past fifty years. The most widely accepted definition is that of the World Food Summit (1996), amended in 2001 by FAO, which incorporated nutritional and cultural dimensions and recognized the multi-dimensional character of The food security. "Food security exists when all people, at all times, have physical [and social] and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". From World Food Summit, 1996 and State of Food Insecurity Report. This definition features four important dimensions or "pillars" that are central to the concept — including not just availability and access but also utilization (referring to nutritional uptake) and stability (referring to the constancy of the other three dimensions). These four components of food security interact in a sequential manner: First, food must be available; then households must have access to it; they must use it appropriately; and finally, the whole system must be stable, i.e. food must be available, accessible, and used appropriately throughout the year by all.

The five a's of food security:

When it comes to ensuring food security, there are five key things to keep in mind: availability, accessibility, adequacy, acceptability, and agency.

The 5 A's of Food Security Infographic :

1. Availability/Food Availability

Availability refers to the physical presence of enough food to meet the needs of everyone in the community. Areas that have limited availability are known as food deserts. Given their lack of food, these areas correspond to much higher incidences of food insecurity. Food availability addresses the "supply side" of food security and is determined by the level of food production, stock levels and net trade. This may be any kind of food, irrespective of its provenance, including local production, imports (international or from other areas of the same country) and food aid. Food may be made available to consumers through the market, or from government/household food stocks. Food availability may be aggregated at the national, provincial, district or community level and is determined by:

Production - food produced in the area.

Stocks - food held by traders, in government reserves and by households in the area.

Trade - food brought into (and taken out of) the area through market mechanisms.

Bulk transfers / food aid - food brought into the area by the government and/or aid agencies.



Some examples of activities to increase food availability:

Food production - Promotion of agriculture activities, including provision of seeds and tools (vegetable garden, crops such as rice, corn, beans, peanuts, etc.); livestock, poultry, fisheries and aquaculture. This includes a large variety of activities such as shelter for livestock, work with veterinary services, including vaccination campaigns, stocking, destocking, distribution of fishing net, fishing gears, fries/alevins.

Training of farmers.

Rehabilitate agriculture infrastructures (dam, irrigation schemes, agriculture roads, etc.).

2. Food Access/Accessibility

Accessibility refers to the ability of people to physically obtain food. This means there should be no barriers preventing people from getting the food they need, such as unreasonably high prices or limited transportation. Food access (of households in specific population groups) is the ability of households to regularly acquire adequate amounts of appropriate and desired food for a nutritious diet. Food access does not just refer to a household's purchasing power to acquire food on the market, but also to the functionality and everyone's possibility of physically accessing the marketplace in a safe way and in a reasonable time, at reasonable cost, with no social barriers. This pillar also looks at the social acceptance of practices related to the acquisition of food, paying special attention to gender, age, sexuality, disability, and protection issues that are related to these activities.

Means of access may include:

Consumption from own production of crops, livestock or farmed fish.

Hunting, fishing, or gathering wild foods.

Purchases at markets, shops, etc.

Income to buy food at markets, shops, etc.

Barter exchange – exchange of items for food; cash for exchange - exchange of items for food, or different kinds of food, to complement diets.

Gifts from friends, relatives, community, remittances.

Cash transfers from government or aid agencies (relief or safety net programmes).

Some examples of activities to improve food access:

Promote the use of CVA (cash and voucher activities) such as multi-purpose cash grants, cash for work, cash for food, vouchers for food. Food assistance in-kind when markets are not functioning.

Livelihood activities such as income generating activities (small business, cash crops, etc.).

Training for livelihoods, vocational trainings with special focus on youth.

Support food and livelihoods input market.

3. Food Utilization /Adequacy

Adequacy refers to the nutritional quality of the food available. This means there is enough variety of foods to provide all the essential nutrients people need to stay strong and healthy. Food utilization by households in specific population groups refers to the use that households make of the food to which they have access and individuals' ability to absorb and metabolize nutrients. Food utilization depends on: The ways in which food is stored, processed, and prepared (including the quality of water and cooking fuel available, and hygiene practices); both at manufacturer and household level.

Feeding practices, particularly for individuals with special needs such as young children.

Elderly, sick people, and pregnant and lactating women; for example, in certain contexts, some foods are reserved for men, while others are reserved for other population segments, or specific foods are considered appropriate or not for pregnant women.

The sharing of food within the household and the extent to which this corresponds to individuals' nutritional needs – intra-household food division – growth, pregnancy, lactation, etc.

The diversity of diets and its effect on the health status of each member of the household.

Some examples of activities to improve food utilization:

Joint activities with other clusters (nutrition, health, WASH clusters) on joint nutrition outcomes on provision of safe water and hygiene practices for food preparation (e.g. storage kits, food safety training), awareness sessions on household nutrition (e.g. cooking demonstration, infant and young children feeding practices) and complementary



feeding practices. Work with the shelter/NFI cluster on cooking utensils/NFI kits and cooking fuel. Promotion of vegetable gardens.

4. Stability/Acceptability

Acceptability refers to the degree to which people are actually willing to eat the food. This means the food is palatable, safe to eat, and produced/obtained in a way that does not compromise people's dignity, self-respect, or basic human rights. Stability refers to the constancy of the other three dimensions i.e. the consistency and reliability in food supplies/availability, access, and utilization: households should not risk losing access to food as a consequence of sudden shocks or cyclical events. Hence, stability involves reducing the risks of adverse effects on the other dimensions of food security. It refers to the temporal dimension of food security and inclusivity; that is, the timeframe during which food security is being considered to the entire given population. Examples include the stability of prices and government policies, constant physical access to markets and agricultural inputs to all.

Stability - Actions against drought and crop failure as well as the protection of the environment and the sustainable use of natural resources like land, soil and water.

Promotion of resilience of (rural) food systems can serve to increase household and community food security in the face of instability.

The Coordinator can support policy and advocacy to ensure that:

Supply at household level remains constant during the year and in the long-term.

Access to market is stable specially in the relevant seasons.

Borders are open and allow food supplies to enter/exit.

Food chain in general is not disrupted.

Steps are taken to ensure pre-disaster food access mechanisms are restored for the community.

Some examples of food stability activities:

In order to inform responses also around stability, it is important to engage in and disseminate assessments to monitor the food security situation and needs, and the factors affecting the stability (of food supply, access and utilization). This includes food security needs assessments, thematic/technical assessments, market price monitoring, value chain assessments, etc.

Facilitate/support IPC Acute Food Insecurity (AFI)/Cadre Harmonisé, which are the most accepted recognised tools to describe and evaluate the food security situation of the population over a period of time.

5. Agency

Agency refers to the ability of people to make choices about what they eat. This means people should have a say in what foods are available and how they are prepared.

Food and the SDGs

As the prime connection between people and the planet, food and agriculture can help achieve multiple Sustainable Development Goals (SDGs). Of course, SDG 2 is the first one that comes to mind. This goal calls for the end of malnutrition and ensure access to safe and nutritious food across the world by 2030. In 2019, an estimated 2 billion people in the world did not have regular access to safe, nutritious and sufficient food. If recent trends continue, the number of people affected by hunger will surpass 840 million by 2030, or 9.8% of the global population.

The Above 5 A's of Food Security: How to Fight Food Spoilage in the Warehouse and at Home

Every day, over 26% of the world's population (about 2 billion people!) experiences moderate to severe food insecurity. To us, this number is unacceptable. Fortunately, learning more about the issue is the first step toward making a real and noticeable difference.

The main discussion what food security is, what causes it, and the devastating impacts it can have on people around the world. We'll then conclude by providing you with actionable ways to help fight food spoilage and waste—both in the warehouse and at home.

World Food Day

Each year on 16 October, World Food Day reminds us that we all have a role to play to realize the vision of a world without hunger and malnutrition. We must not let sustainable habits fall by the wayside in times of crisis. We can make healthy food choices and do our part to reduce food waste. In addition, governments, enterprises, and organizations can share their knowledge and support sustainable, resilient food systems and livelihoods. Together, we can grow, nourish, and sustain our world. Find more information and related events for each edition:



World Food Day 2024 | Right to foods for a better life and a better future

World Food Day 2023 | Water is life, water is food. Leave no one behind.

World Food Day 2022 | Leave NO ONE behind

World Food Day 2021 | Our actions are our future. Better production, better nutrition, a better environment, and a better life.

World Food Day 2020 | Grow, Nourish, Sustain. Together. Our Actions are our Future

World Food Safety Day

Food safety saves lives. It is not only a crucial component to food security, but it also plays a vital role in reducing foodborne disease. Every year, 600 million people fall sick as a result of around 200 different types of foodborne illness. The burden of such illness falls most heavily on the poor and on the young. In addition, foodborne illness is responsible for 420 000 preventable deaths every year. World Food Safety Day, observed on 7 June, aims to draw attention and inspire action to help prevent, detect and manage foodborne risks, contributing to food security, human health, economic prosperity, agriculture, market access, tourism and sustainable development. WHO and the FAO jointly facilitate the observance of World Food Safety Day, in collaboration with Member States and other relevant organizations. This international day is an opportunity to strengthen efforts to ensure that the food we eat is safe, mainstream food safety in the public agenda and reduce the burden of foodborne diseases globally.

2024 Theme: Food safety: prepare for the unexpected

On World Food Safety Day, we remember that food safety is a collective responsibility – everyone from producers to consumers needs to play their part. Even then, there is always something we can do to avoid illness. Food safety incidents can range from minor events to major international crises, whether it is a power outage at home, a food poisoning at a local restaurant, a voluntary recall of contaminated products by a manufacturer, an outbreak from imported products, or a natural disaster. Food safety hazards do not recognize borders, so in an increasingly interconnected global food supply, risks posed by unsafe food can rapidly evolve from a local problem to an international emergency.

International Day of Awareness of Food Loss and Waste Reduction

Each year on 29 September, the International Day of Awareness of Food Loss and Waste. Reducing food loss and waste is of significant importance as it contributes to the realization of broader improvements to agri-food systems toward achieving food security, food safety, improving food quality and delivering on nutritional outcomes. Reducing food loss and waste also contributes significantly to the reduction of greenhouse gas emissions, as well as pressure on land and water resources. Find more information and related events for each edition:

International Day of Awareness of Food Loss and Waste 2024

International Day of Awareness on Food Loss and Waste Reduction 2023

Ensuring Decent Work Conditions

Agri-food jobs are among the most hazardous, unprotected and poorly paid. Two-thirds of those workers classified as 'extremely poor' are in agriculture. In some countries, agricultural workers are excluded from general labor legislation. They may therefore lack the rights and legal protections available to workers in other sectors. To address this issue, the International Labour Organization (ILO), the International Fund for Agricultural Development (IFAD), and CARE International joined forces in a multi-stakeholder partnership to advance labour and human rights, decent jobs and fair and adequate incomes and wages within the agri-food sector, The Decent Work in Food Systems.

Impacts of food insecurity

Those suffering from food insecurity for an extended period of time are subject to a number of adverse side effects.

These include:

Malnutrition

Chronic illness

Diabetes

Obesity

Deterioration of physical, mental, and social health



Causes of food insecurity

When it comes to food insecurity, there are three primary sources.

1. Poverty

Economic downturns can lead to a rise in unemployment and a decline in wages. Access to nutritious foods will often be affected, as well as access to basic health and social services.

2. Geography

Remote communities where food deserts reside often lack access to nutritious and high-quality food. This is typically due to higher-than-normal transportation costs and less food variety.

3. Environment

Studies show that climate change increases greenhouse gases, flooding, and average temperatures. Unfortunately, over 500 million people live in areas affected by land erosion and desertification linked to climate change.

III. CONCLUSION

Food security, health, and the environment are deeply interconnected, influencing the overall well-being of societies and the sustainability of natural resources. Ensuring food security is not just about increasing food production but also about maintaining environmental balance and improving public health. Climate change, pollution, and natural resource depletion pose significant threats to food availability, while poor environmental conditions contribute to health risks such as malnutrition, waterborne diseases, and respiratory illnesses.

Addressing these challenges requires a multi-faceted approach that integrates sustainable agricultural practices, effective public health policies, and environmental conservation efforts. Governments, policymakers, scientists, and communities must work together to promote eco-friendly farming, ensure equitable access to nutritious food, and strengthen healthcare systems. Investments in clean energy, water management, and biodiversity conservation are crucial for long-term sustainability.

Ultimately, achieving a balance between food security, health, and environmental sustainability is essential for global development. By adopting innovative solutions, enforcing responsible policies, and encouraging community participation, societies can create a resilient future where food is accessible, health is prioritized, and the environment is protected for generations to come.

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