

A close-up photograph of a person's hands holding a shallow, light-brown ceramic bowl filled with fresh cherry tomatoes. The tomatoes are in various stages of ripeness, from bright green to deep red. The person's left hand is wearing a light-colored, textured gardening glove with blue polka dots. The background is a soft-focus green field. A blue banner with white text is overlaid at the bottom of the image.

Food Safety Food Security

World Food Safety Day June 7th



BENEFITS OF SAFE FOOD FOR CHILD GROWTH AND DEVELOPMENT

Globally, children under the age of 5 are at a higher risk of malnutrition and mortality due to unsafe food.

- 149 million have short height for their age;
- 45 million have low weight for their height;
- Unsafe food caused 1 in 6 deaths from diarrhea, a major killer in this age group.

REMEMBER:

- ✓ Good food hygiene practices
- ✓ Appropriate storage, preparation and service
- ✓ Keep your food safe and nutritious

ALL CHILDREN HAVE THE RIGHT TO:

- Safe foods
- Safe water
- Nutritious foods for healthy diets
- Exclusive breastfeeding for the first 6 months of life

HEALTH BENEFITS	DEVELOPMENTAL BENEFITS	ECONOMIC BENEFITS
↑ HEALTH IN THE EARLY AND ADULT LIFE	↑ INTELLECTUAL DEVELOPMENT	↑ WORK PRODUCTIVITY IN ADULT LIFE
↑ PHYSICAL GROWTH	↑ SCHOOL PERFORMANCE	↑ EARNING POTENTIAL IN ADULT LIFE
↓ RISK OF HAVING DIARRHOEA	↑ PHYSICAL POTENTIAL	↓ HEALTH SPENDING FOR FAMILIES AND FOR SOCIETY

Benefits of safe food for the economy:

- Higher productivity
- Flourishing food markets
- Stable food exports and trade
- Lower medical expenses



Production of safe food benefits the planet, including reducing food loss and waste



Agenda

- Introduction
- Food Security
- Food Safety
- Relationship Food Safety Food Security
- Workshop

Key Facts

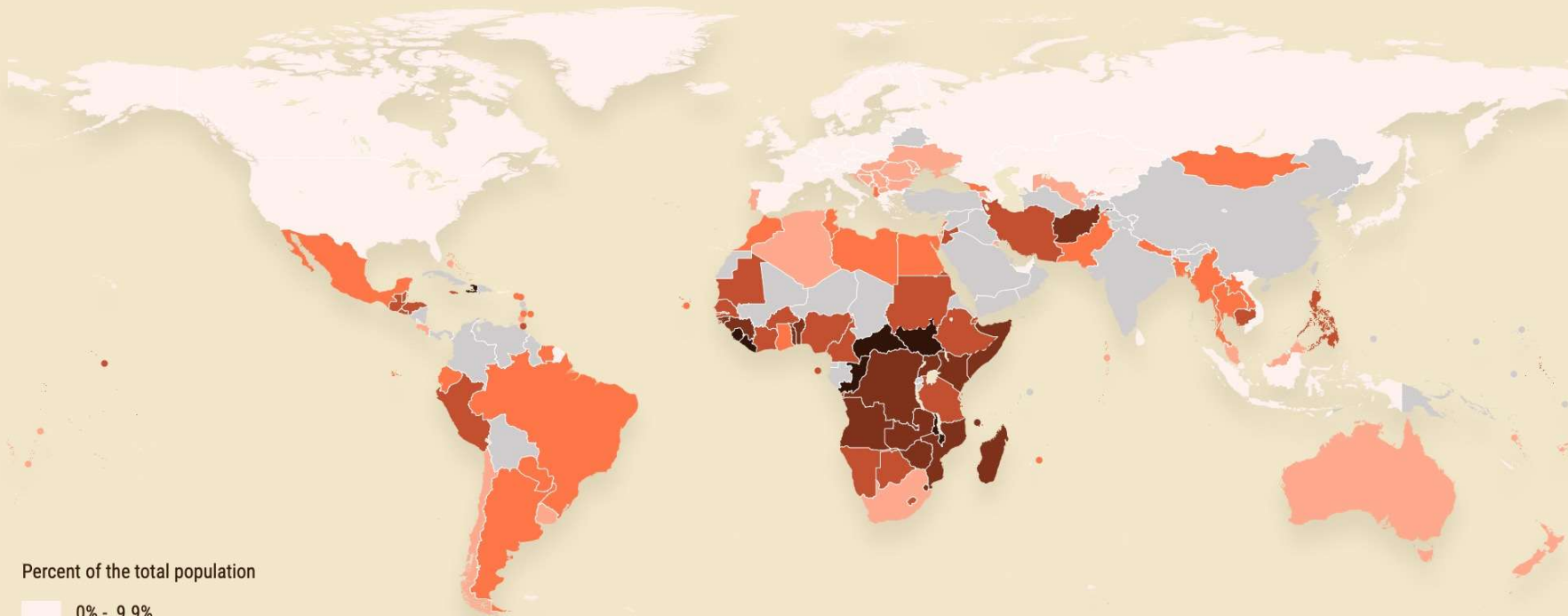
- Around 600 million people worldwide, or approximately 1 in 10, get sick after eating contaminated food, and 420 000 people pass away every year.
- Each year, low- and middle-income nations lose US\$ 110 billion in productivity and medical costs as a result of hazardous food.
- Children under the age of five account for 40% of the foodborne disease burden, with 125 000 deaths per year.
- Foodborne infections hinder socioeconomic progress by depleting health-care systems and wreaking on national economies, tourism, and trade.



Food and Agriculture
Organization of the
United Nations

FAO FOOD INSECURITY MAP

Prevalence of Moderate or Severe Food Insecurity 2019-2021
SDG Indicator 2.1.2



Percent of the total population

- 0% - 9.9%
- 10% - 24.9%
- 25% - 39.9%
- 40% - 59.9%
- 60% - 79.9%
- 80% - 100%
- Data not available or not country validated

Source: FAO, IFAD, UNICEF, WFP and WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable*. Data are available on FAOSTAT (<https://www.fao.org/faostat/en/#data/FS>)

The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.



World Food Programme

HungerMap LIVE

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Covid-19 statistics by country income group v

Covid-19 Alerts

● Countries with ≥ 400 cases /100,000 in the last 14 days.

Conflict Alerts

● Countries with ≥ 1 fatality /200,000 in the last 30 days.

Climate Alerts

● % of people living in areas with significant rainfall or vegetation deficit > 15%

● % of people living in areas with significant excess rainfall > 15%

0.67B

Total number of people with insufficient food consumption

15

Number of countries with very high levels of hunger

Prevalence of insufficient food consumption ⓘ >

Very Low	Low	Moderately low	Moderately high	High	Very high
0-5%	5-10%	10-20%	20-30%	30-40%	Above 40%

Hazards

Conflict

Undernourishment

Current Food Consumption

Vegetation

Rainfall

IPC/CH



Home

Glossary

Methodology

Disclaimer

Source: WFP, @ OpenStreetMap

Introduction

- There is no food security without food safety.
- Contaminated food leads to deaths as well as costs.
- Safe, sufficient, and nutritious foods are relevant to the SDGs.
- Food security, food safety, and proper nutrition are essential features of food systems.
- Food security has been prioritized over food safety, and food safety over healthy nutrition.
- Food safety compliance is a challenge in developing countries.
- Access to nutritious, safe, and healthful food is a fundamental human right. To defend this right, governments must ensure that food sold on the market complies with safety requirements.

The interplay between food safety and food security is important and emphasizes a call for action to boost food safety.

A close-up photograph of a person's hands holding a rustic, light-brown ceramic bowl filled with fresh cherry tomatoes. The tomatoes are in various stages of ripeness, with some being bright red and others still green. The person is wearing light-colored, knitted work gloves with a blue polka-dot pattern on the palms. The background is a soft-focus green field.

Food Security

Food Security

*“exists when **all people**, at **all times**, have **physical and economic access to sufficient, safe, and nutritious food** that meets their **dietary needs and food preferences** for an active and healthy life.”*
(World Food Summit, 1996)

Food Security Pillars

Stability of the other three dimensions

The three pillars (availability, access, and utilization) must be stable over time

Food utilization

Frequently defined as the process through which the body extracts the most nutrients from the diet

through feeding practices such as proper food preparation, a varied diet, and intrahousehold food distribution



FAO,2022; Vaudin et al., 2022

Physical availability of food

Refers to the supply side, food produced, the amount of food stored, and traded

Economic and physical access to food

Low diet quality is associated with economic food poverty. The physical access refers to the capacity to get and prepare food.

Most studies have focused on economic food poverty, ignoring the effects of physical barriers to food access

A close-up photograph showing a pair of hands holding a shallow, terracotta-colored bowl filled with several cherry tomatoes. The tomatoes are in various stages of ripeness, with some being bright red and others still green. The hands are wearing light-colored, knitted work gloves with a blue polka-dot pattern on the palms. The background is a soft-focus green field.

Food Safety

Food Safety

*"the **assurance** that food will **not cause harm** to the **consumer** when it is prepared and/or eaten according to its intended use." (CAC, 2003)*

Food Safety

- Every year one million people fall ill due to food poisoning. These are the cases reported to the doctor, in reality there are many more.
- The symptoms can range from a stomach infection or diarrhoea to severe food poisoning that can lead to death.
- To ensure that food is safe, food business operators (FBO) must have a **quality system that defines what hazards** exist within the company and how these hazards are prevented or controlled.
- There are 3 types of hazards:
 - Contamination of food with (micro)organisms (bacteria)
 - Contamination with chemicals (cleaning agent etc)
 - Physical contamination (plastic, glass, wood)
- Food safety is a shared responsibility, and every stakeholder in the food supply chain a role.

Microbiological

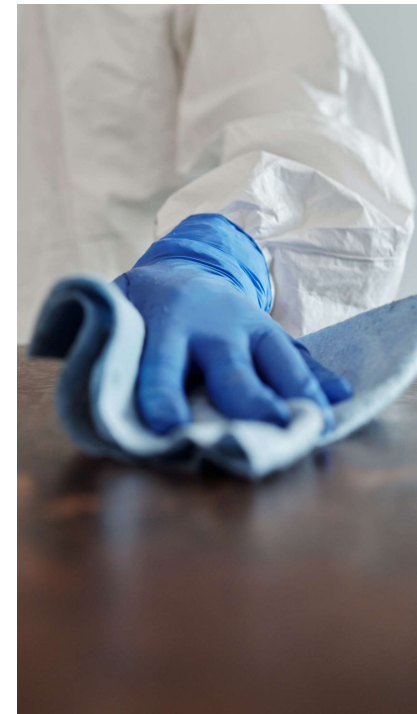
Food infections and food poisoning are caused by microorganisms. Microorganisms are the bacteria, fungi, yeasts, germs and viruses. For all micro-organisms, they are so small (micro=very small) that they cannot be seen by the naked eye. Which is also where the greatest danger lies.



Chemical contamination

Dangerous chemicals can get into the food product. Some examples of contamination:

- Cleaning agents
- Disinfectant
- Chlorine
- Lubricating oil for machines etc.



Physical contamination

The last possible contamination is physical contamination.

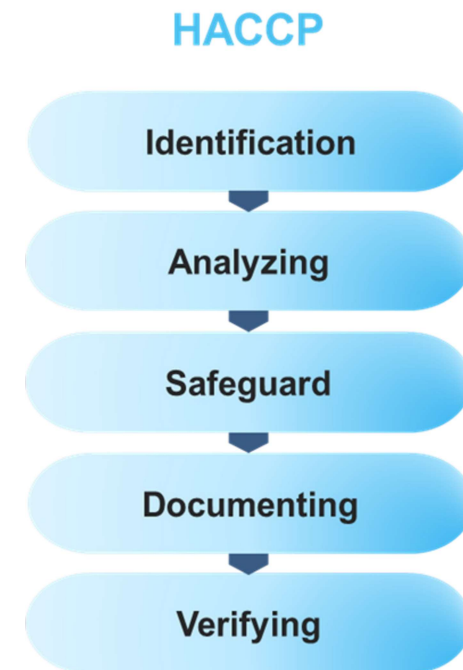
Physical contamination includes:

- Glass
- Plastic
- Wood
- Nuts
- Screws
- Pieces
- Broken parts of a machinery



HACCP

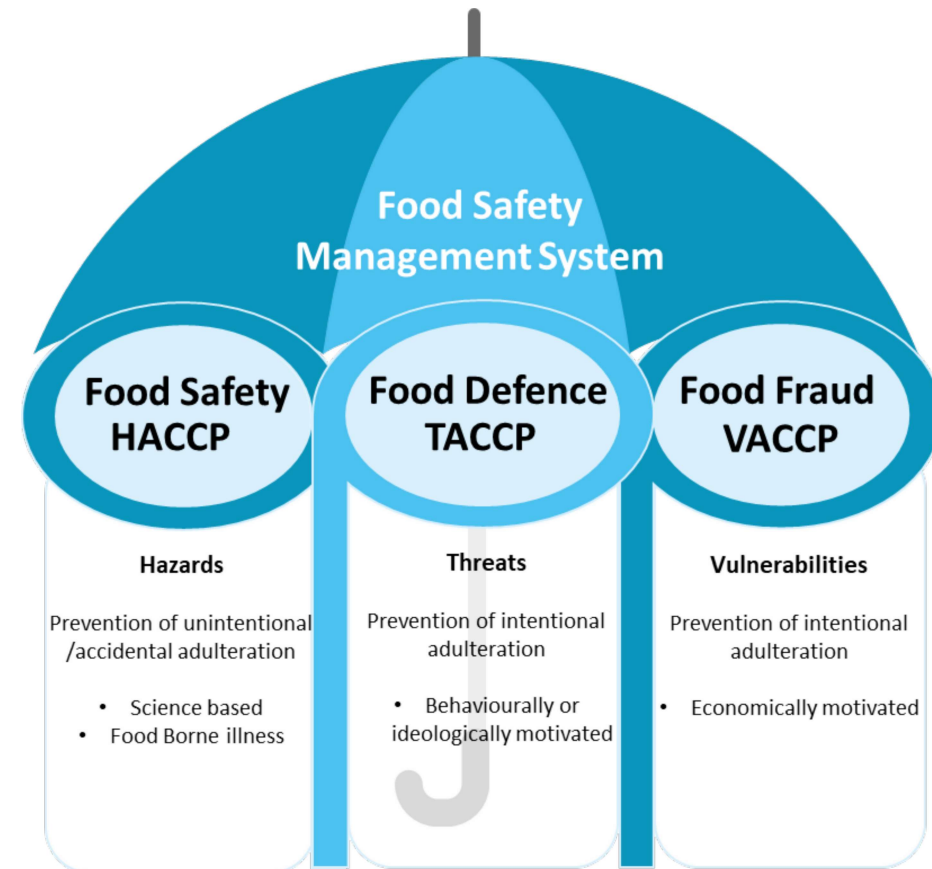
- **Hazard Analysis and Critical Control Points**
- 'For everyone who works with food'
- Food safety system, based on a risk analysis of raw materials and processes.
- The quality department should carry out the HACCP study to determine the hazards and risks as well as the control measures.



Food Safety

- Food safety is a shared responsibility
 - food authorities: establish and enforce regulations
 - food producers and food business operators (FBOs): adopt good food safety practices and adhere to legislation
 - consumers: apply safe food handling methods
- Food businesses: food safety management system (FSMS) is required to guarantee the safety of the foods and mitigate any hazards that can cause harm or injury to consumers.

"A FSMS is a holistic system of prevention, preparedness, and self-check activities to manage food safety and hygiene in a food business"



Source: FSSC22000, 2019

A close-up photograph of two hands holding a rustic, terracotta bowl filled with fresh cherry tomatoes. One hand is bare, while the other wears a light-colored, textured gardening glove with blue polka dots. The background is a soft-focus green field.

Relationship Food Safety Food Security

Food Safety and the SDGs

Food Safety is part of the Sustainable Development Goals and it is vital in achieving the following goals:

- Ending poverty
- Ending hunger
- Promoting good health and well-being

and also it contributes indirectly to:

- Gender equality
- Clean water and sanitation
- Decent work and economic growth
- Sustainable cities and communities
- Safe food is required to meet nutritional diet needs.
- Unsafe food inhibits the nutrients uptake and thus makes it unsuitable for human consumption.

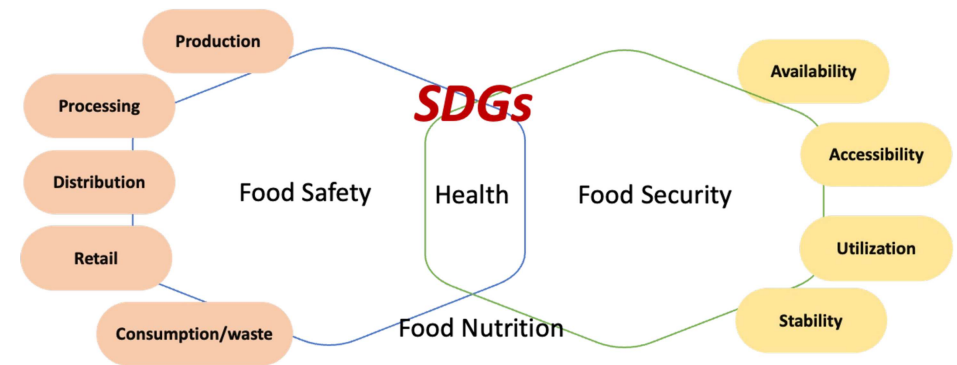


Food Loss and Waste

- 14 % of food is lost from harvest up to, but not including retail.
- Over 17 % of food is wasted globally at the retail and consumer levels → 10 % of greenhouse gas emissions.
- 931 million metric tons of food are wasted each year in the food service industry, retail stores, and households.
- In less developed food systems, up to 30% of food losses occur at the production, postharvest, and processing levels.
- Food insecurity is exacerbated by food waste and losses caused by unsafe food, which further put a strain on waste management systems.

Relationship Food Safety Food Security

- Based on a qualitative study that investigated and sought to understand the intersection of food security and food safety in East African emerging nations at both the farmer and food business operator levels (MSc thesis Mierlut, A.).
- In less developed countries, due to a lack of investments in agriculture and food systems, up to 30% of food losses occur at the production, postharvest, and processing levels.
- In low- and middle-income countries, the effect of unsafe food results in annual output losses.
- Foodborne illnesses can raise the risk of malnutrition.



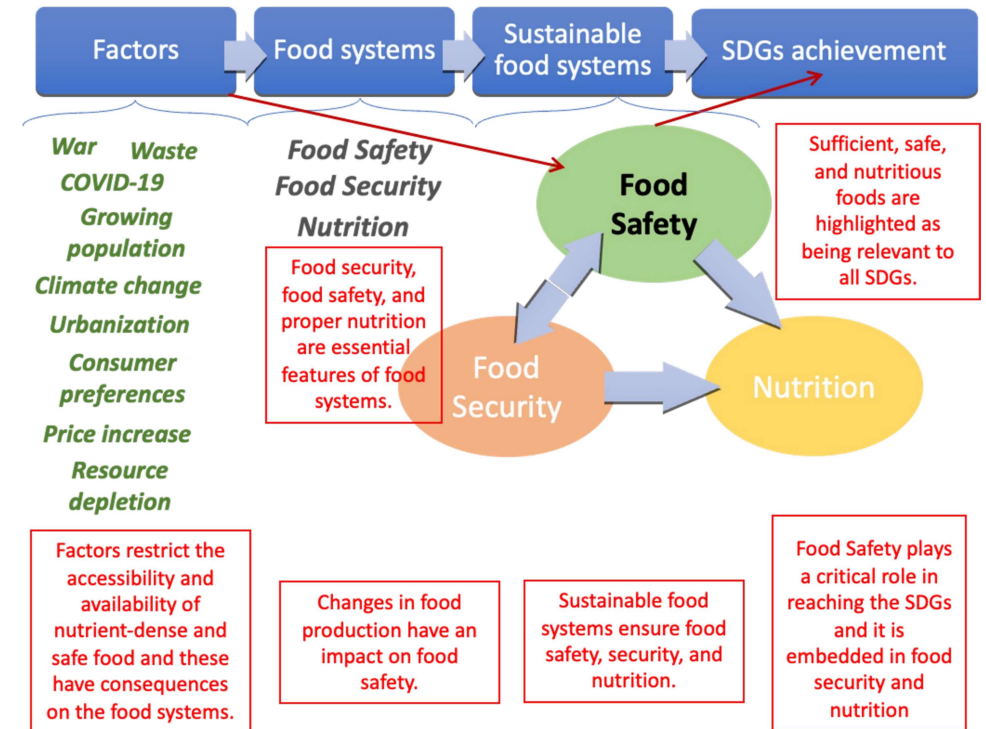
Hazards Growing population COVID-19 Waste
 Consumer preferences Climate change War
 Urbanization Resource depletion Price increase

Mierlut, A. 2023 (MSc thesis project) Adapted from
 Sobal et al., 1998 and Barakat 2017

Relationship Food Safety Food Security

- Eradicating hunger is not only about supplying food.
- Enough food is produced to feed everyone.
- Many factors impact the accessibility and availability of nutrient-dense and safe food.

Sufficient, safe, and nutritious foods are highlighted as being relevant to SDGs.



Mierlut, A. 2023 (MSc thesis project) Sources: FAO 2019, 2022; WHO, 2022

Sociology of Food

- Correlation between income and compliance with hygiene regulations. The higher the income, education level, and social class, the greater the likelihood of adhering to and complying with regulations and hygiene rules.
- Discourses on food safety seem to win over concerns about food waste, so the need to prevent the consumption of hazardous foods is a sufficient justification for throwing away and wasting food in developed countries.
- In developing countries, food waste is perceived differently and is directly linked to hunger and food insecurity. Food loss and waste is seen as a result of a lack of food safety practices, which negatively impacts food security.
- By reducing food waste and facilitating market access and productivity, sustainable food production contributes to poverty reduction, particularly in developing rural areas.

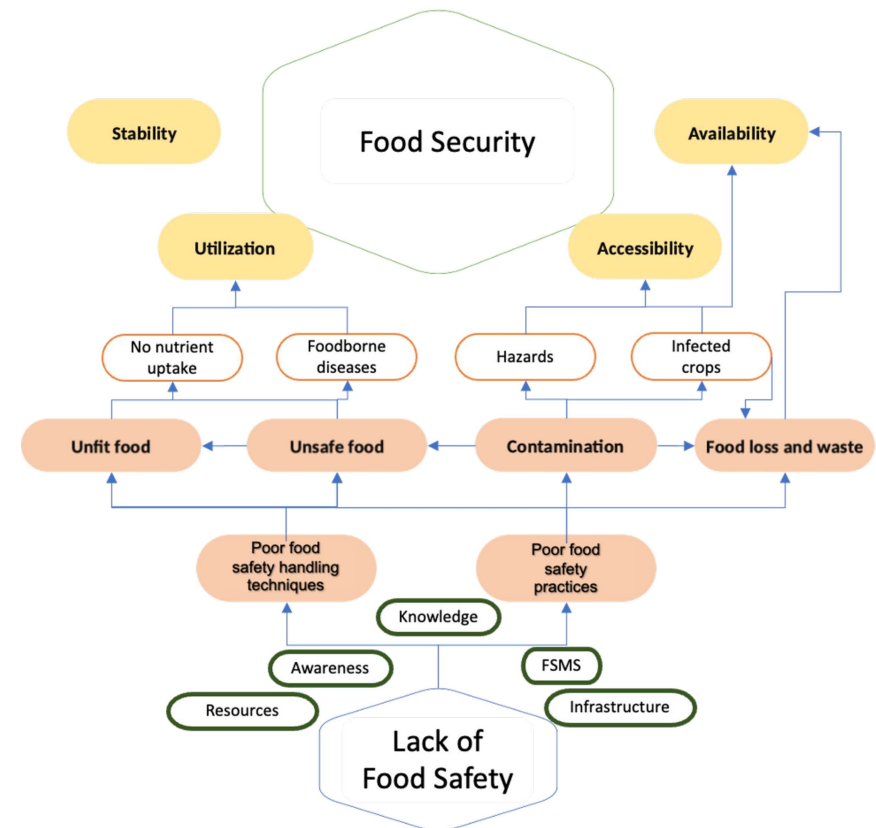
East Africa



- 250 million food-insecure individuals in East Africa (2019).
- Food hazards were responsible for 1,200 disability-adjusted life years (DALYs) per 100,000 inhabitants in 20 nations in Eastern and Southern Africa.
- There is a challenging food safety situation.
- Interventions on food safety, yet it is not uniform due to fragmented governance.
- Attempts to harmonize food safety standards, yet not put in practice.

Food safety impacts Food Security

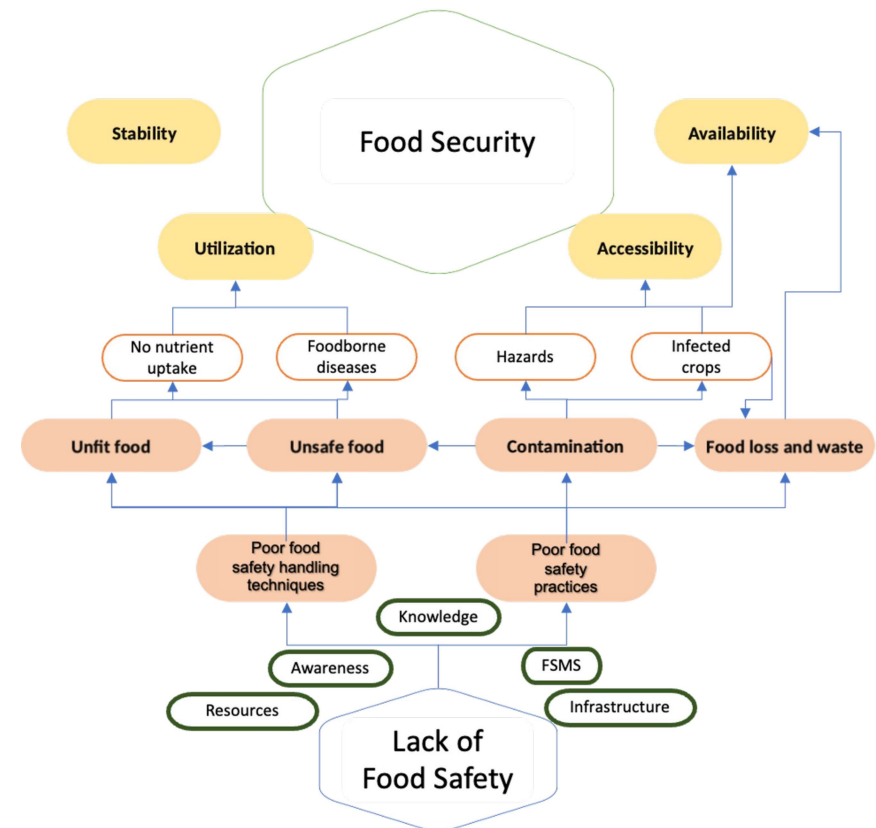
- Qualitative study to investigate and understand the intersection of food security and food safety in East African emerging nations at both the farmer and food business operator levels (MSc thesis).
- A lack of food safety in East African countries leads to poor food safety practices and inadequate food safety handling procedures
- Contamination, food loss, and waste, consumption of dangerous and inappropriate food → physical barriers to food access, availability and utilization
- The food security pillars are affected.



Mierlut, A. 2023 (MSc thesis project)

Food safety to Food Security

- Enhanced food safety:
 - reduces unsafe food → a decrease in foodborne diseases
 - mitigates food safety hazards → to less food loss and waste, resource loss → increased availability and access to food
- Boosting food safety can lead to improved food security



Mierlut, A. 2023 (MSc thesis project)

Food safety to Food Security

- Food safety is a crucial component of a food system because it is an integral part of every stage of the food supply chain.
- Food security and food safety, together with appropriate nutrition, are fundamental aspects of sustainable food systems that have substantial effects on individuals' health.
- Food safety is part of the SDGs and plays a critical part in attaining them.
- Therefore, one could argue that when food safety is improved, food security is enhanced, and thus the food system will benefit.
- FSMS can improve food safety:
 - helps prevent food safety hazards
 - mitigates food loss and waste along the supply chain (especially at the beginning steps: production, post harvesting)

For more information about the project:

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