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Presentation of the Committee : Food and Agriculture Organization (FAO)

The Food and Agriculture Organization of the United Nations (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger and improve nutrition and food security. Its Latin motto, fiat panis, translates to "let there be bread". It was founded on 16 October 1945 in Quebec City, Canada.

The FAO comprises 195 members, including 194 countries and the European Union (EU). Its headquarters is in Rome, Italy, and it maintains regional and field offices worldwide, operating in over 130 countries. It helps governments and development agencies coordinate their activities to improve and develop agriculture, forestry, fisheries, and land and water resources. It also conducts research, provides technical assistance to projects, operates educational and training programs, and collects agricultural output, production, and development data.

The FAO is governed by a biennial conference representing each member country and the EU, which elects a 49-member executive council. The director-general, as of 2019 Qu Dongyu of China, serves as the chief administrative officer. Various committees govern matters such as finance, programs, agriculture, and fisheries.

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Topic 1 : Cutting food waste from production to consumption to improve global food availability?

Different types of food wastes and at what step

Food waste occurs at multiple stages of the food supply chain, from primary production to final consumption, and takes different forms depending on the level of development of the food system. **At the production stage**, losses mainly result from climatic shocks, pests and diseases, inefficient harvesting techniques, or market-driven overproduction, which can lead farmers to leave crops unharvested. **Post-harvest losses** are especially significant in low- and middle-income countries and are caused by inadequate storage facilities, poor transportation infrastructure, and insufficient refrigeration, leading to spoilage and contamination.

During the **processing and manufacturing stage**, food waste arises from technical inefficiencies, quality standards, trimming, and by-products that are not valorized, as well as damage during handling or packaging. **At the distribution and retail stage**, waste is often linked to logistical failures, improper temperature control, overstocking, and strict aesthetic or quality requirements that cause edible food to be discarded.

Finally, **the consumption stage** (particularly in high-income countries) is a major source of food waste. Households and food services waste food due to over-purchasing, poor meal planning, misunderstanding of expiration labels, improper storage, and cultural norms that favor abundance. Altogether, these different types of food waste reflect structural, technological, and behavioral factors that vary along the supply chain, highlighting the need for stage-specific interventions to reduce global food losses and improve food availability.

Quantification of the impact of that waste

Global scale of food waste: Every year, an estimated 1.05 billion tons of food are wasted at the retail and household levels (equivalent to about 19 % of all food available to consumers). In addition, roughly 13 % of food produced is lost earlier in the supply chain (post-harvest, storage and transport) before it reaches retail. Together, this means **nearly one-third of all food produced for human consumption is never eaten**.

Economic and food security impacts: This waste occurs even as hundreds of millions of people face hunger with **around 783 million undernourished worldwide**.

Environmental footprint: Food waste is a major driver of environmental degradation because it contributes to an estimated **8–10 % of global greenhouse gas emissions**, uses vast amounts of **freshwater**, and occupies **large swaths of agricultural land**. The water used to produce wasted food each year totals about 250 km^3, roughly equivalent to three times the annual flow of the Volga River. Around 1.4 billion hectares (about 28 % of the world's agricultural land) are used annually to grow food that is ultimately lost or wasted.

Super-trawling is held accountable for a loss of around 30 to 40% of the catches worldwide due to killing non-target species. This not only harms marine resources dramatically but wastes actual food.

Of course, some regional differences are at stake: Sub-Saharan Africa and other **low-income regions have higher pre-retail losses** due to infrastructure constraints, with post-harvest losses around 20–23 % of food produced. While **High-income countries tend to waste more food at the retail and household levels**, with per-capita food waste much higher than in low-income regions. Households remain the largest single source of waste globally, accounting for about 60% of consumer-level waste.

Where we witness the most tangible food availabilities discrepancies

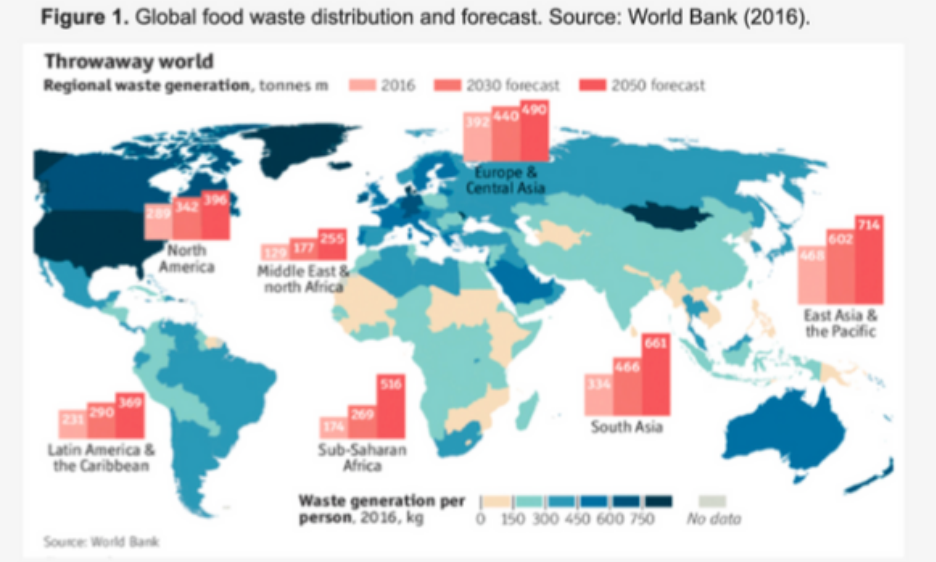

Figure 1. Global food waste distribution and forecast. Source: World Bank (2016).

The most tangible food availability discrepancies appear when comparing regions facing chronic food scarcity with those generating massive food waste, revealing deep imbalances in the global food system. **Sub-Saharan Africa** stands out as the region with the most severe food shortages. Despite low per-capita food waste, high levels of undernourishment persist due to climate vulnerability, conflict, low agricultural productivity, and weak infrastructure. Post-harvest losses are significant, yet overall food availability remains critically insufficient for large segments of the population.

South Asia similarly combines persistent food insecurity with rapidly rising food waste volumes. Although per-capita waste remains moderate compared to high-income regions, the region's large population results in substantial total waste, even as millions continue to suffer from malnutrition. This highlights major disparities between food production, access, and consumption.

In contrast, **high-income regions such as North America and Europe & Central Asia** display the opposite pattern. Food availability is abundant, but waste levels are extremely high, particularly at the retail and household stages, driven by overconsumption, strict quality standards, and inefficient consumer behavior.

East Asia and the Pacific present a mixed situation, with increasing food waste due to urbanization and rising incomes, while food access remains uneven in rural or marginalized areas. **Latin America and the Caribbean** show moderate waste alongside persistent food insecurity in vulnerable populations. Overall, global hunger is less a problem of production than of unequal distribution, access, and systemic inefficiencies.

Overall, global hunger is less a problem of insufficient production than of unequal distribution, economic access, and inefficiencies across the food system.

Some actual measures to cut food waste

Reducing food waste requires coordinated action across the entire food supply chain. **At the production and post-harvest stages**, investments in better storage facilities, cold chains, and transport infrastructure can significantly reduce losses, particularly in low-income countries. Training farmers in improved harvesting and handling techniques also helps limit spoilage. **In processing and retail**, relaxing cosmetic standards, improving demand forecasting, and redistributing unsold food through food banks or secondary markets can prevent edible food from being discarded. Clearer date labeling (“use by” vs. “best before”) reduces unnecessary waste.

An agricultural cooperative in Australia that uses local supermarkets' food waste to feed its beefs.
Source: ABC News, 2017

At the consumer level, awareness campaigns, better meal planning, and portion control are key levers, especially in high-income countries. Digital tools and apps can help households track food purchases and reduce overbuying. Governments can support waste reduction through **regulation and incentives**, such as tax benefits for food donations, bans on destroying edible food, and national food waste reduction targets. Finally, unavoidable food waste can be **valorized through composting, animal feed**, or bioenergy, ensuring that resources are recovered rather than lost.

Key Players

UNEP (United Nations Environment Programme) coordinates the global food waste agenda and monitors progress toward SDG 12.3.

World Bank finances infrastructure, cold chains, and supply-chain improvements to reduce post-harvest losses.

National governments and local authorities implement regulations, incentives, and national food waste reduction strategies. Especially some dominant countries in certain fields like the People's Republic of China regarding fishery, the United States of America or the Federative Republic of Brazil on meat production and consumption, the Republic of India on rice culture efficiency, or Mercosur for instance.

Retailers and food industry companies influence waste levels through procurement standards, logistics, and consumer practices. For example: Walmart, Nestlé, JBS, Carrefour, Schwarz Group...

Farmers and producer organizations adopt improved harvesting, storage, and handling practices to reduce losses.

NGOs and food banks (e.g. food redistribution networks) recover surplus food and redirect it to vulnerable populations, like Feed the Children, UNICEF, Food Bank Network Nigeria...

Consumers and households play a central role by changing purchasing, storage, and consumption behaviors.

Technology and agri-food startups develop digital tools, tracking systems, and innovations to reduce waste along the supply chain; like Novameat, Finless Foods, Aquawise, Bonsai Robotics...

Key Questions

- What are the characteristics of my country regarding food waste and availability?
- Is my country benefiting or suffering from the current global food system?
- Is food waste the only cause of food scarcity in some regions of the world? If not, what are the others and how to rank them in terms of priority?
- Do impactful (both in positive and negative ways) food companies, reside in my country? NGOs? Institutions?
- What are my country's needs: thriving agribusiness? food availability for all? Alliances with complementary partners?
- Are problems related to food waste in my country more centered around technical practices or social/cultural habits?

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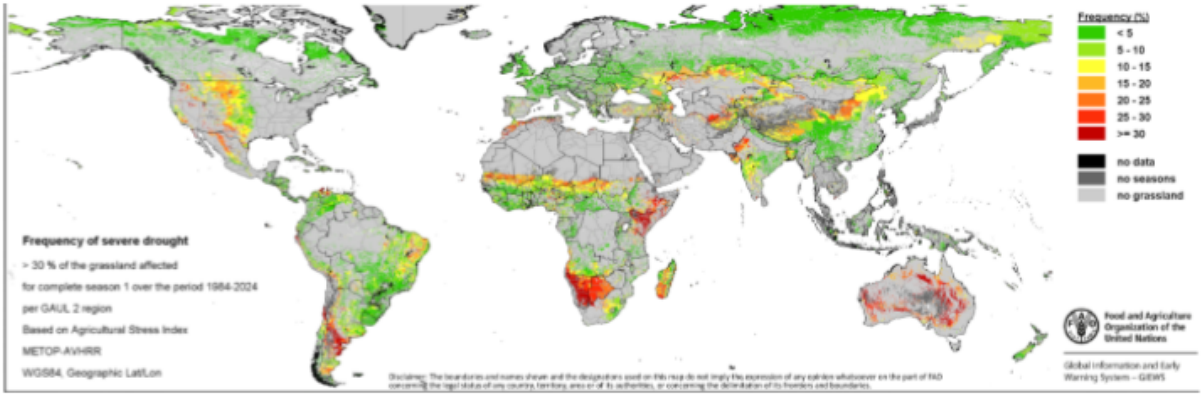
Topic 2 : How can the FAO support countries in adapting their agricultural systems to increasing climate risks such as droughts, floods, and shifting crop viability?

Which areas are affected by which climate risks



This official map from the FAO details the frequency of increasing severe droughts around the world, between 1984 and 2024. In addition to the frequency of severe drought, multiple climate-related risks now affect agriculture globally, with **distinct regional patterns** of vulnerability.

In Sub-Saharan Africa, recurrent severe drought persists as a structural threat to agricultural productivity, exacerbated by climate phenomena such as **El Niño**; during the 2023-24 prolonged drought, over 27 million people in Southern Africa were affected and several countries declared national disasters due to **crop failures** and livestock losses. **Desertification** further compounds risk, with roughly 45 % of Africa's land at risk, reducing soil fertility and increasing aridity in key farming zones.

South Asia remains highly exposed to drought and **variable rainfall patterns**, notably in large cropping regions of India and Pakistan. Beyond drought, heatwaves and extreme temperatures have become more frequent, aggravating soil moisture deficits and crop stress during critical development stages, with South Asia accounting for the largest share of historical agricultural losses.

In Southeast Asia, heavy rainfall events linked to climate change have caused devastating floods, submerging thousands of hectares of cropland and threatening food security. These alternating extremes of drought and flood increase the **complexity of risk management** for farming systems.

In Latin America, areas of Brazil, Paraguay, and northern Argentina have experienced recurrent drought, while **wildfire** outbreaks have affected tens of millions of hectares, notably during Brazil's recent worst-record drought when roughly 34.5 million hectares burned. The region also faces flood risk during abnormal precipitation events, which can **inundate farmland and erode soils**. These climatic events add to the social and economic difficulty to convert local productors to other crops than **coca in Andean countries** like Colombia.

The Mediterranean Basin and North Africa are increasingly characterized by intense heatwaves and prolonged dry spells; temperatures in the Middle East and North Africa are rising at twice the global average, contributing to more frequent droughts and escalating heat stress on agriculture and water systems. Sea-level rise and changes in precipitation patterns also pose **localized flood risks in coastal agricultural areas.**

Scientific perspective of risks evolution

Scientific assessments project that climate-related risks to agriculture are expected to increase in frequency, intensity, and geographic extent over the coming decades, with important implications for food security, livelihoods and agrifood systems globally. The **IPCC (Intergovernmental Panel on Climate Change)** note that climate-related extremes such as droughts, floods, heatwaves and wildfires have already reduced agricultural productivity in many regions and will continue to do so under most warming scenarios.

Under intermediate to high greenhouse gas emissions trajectories, rising temperatures accelerate soil drying and expand heat stress on crops and livestock. **For every 1 °C of additional warming, staple crop yields** are projected to decline by 4–10 %, even with some adaptation measures in place.

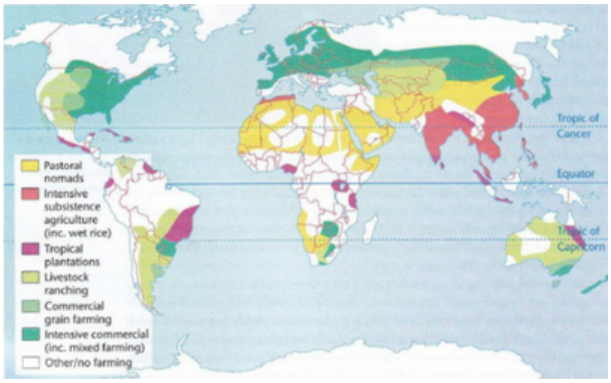
In many semi-arid and subhumid regions, particularly in Sub-Saharan Africa and South Asia, projections indicate a continued rise in the frequency and duration of severe droughts, leading to chronic water stress and soil degradation. Nearly 40 % of the world's land area is already exposed to increasingly frequent drought conditions. At the same time, intense rainfall and flood risks are projected to increase in **river basins** and **low-lying agricultural plains** worldwide as atmospheric moisture content rises with warming. These shifts in precipitation extremes can damage crops, erode soils and interrupt seasonal planting cycles, especially in **delta regions** of Asia and parts of Latin America.

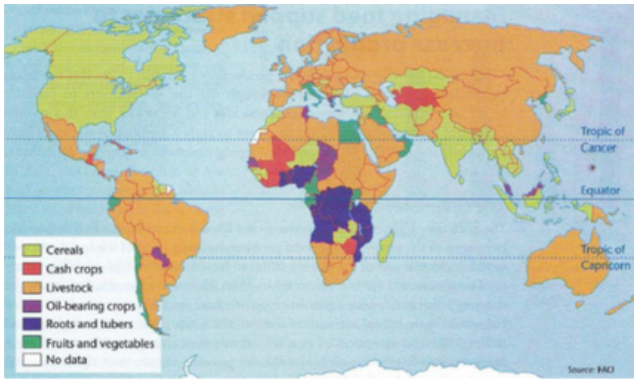
Punjab repetitive floods severely impact
India's rice harvests
(here in Sept 2025, *Independent*)

The expansion of heatwaves as a direct consequence of global warming poses a separate threat: **extreme heat can reduce crop yields by up to 50 % during individual events**, suppress livestock productivity and increase mortality, and affects an estimated **1.23 billion people who depend on agricultural livelihoods**.

Scientific scenarios also emphasize compound and cascading effects. Climate models indicate that, as warming approaches and exceeds 2 °C by the end of the century, an increasing share of agricultural land will experience **combinations of extreme events** such as heat with drought, drought with wildfire or floods with heat, thereby greatly complicating adaptation efforts.

The current state of agricultural systems and why they should be reshaped





Current agricultural systems are the result of long-standing interactions between climate conditions, natural resources, population distribution and economic development. As illustrated by global maps of farming systems and dominant crop types, agriculture remains highly diverse, ranging from pastoral and subsistence systems in arid and tropical regions to intensive commercial farming in temperate zones. **These systems have historically been adapted to relatively stable climatic patterns, including predictable rainfall, temperature ranges and seasonal cycles.**

In many parts of Sub-Saharan Africa and South Asia, agriculture is dominated by **rain-fed subsistence farming and pastoral systems**, which are highly sensitive to variations in precipitation and temperature. In contrast, commercial grain farming and intensive mixed systems in North America, Europe and parts of East Asia rely heavily on stable water availability, predictable growing seasons and high levels of technological input. Meanwhile, **tropical plantation systems**, concentrated in equatorial regions, depend on specific temperature and rainfall thresholds to sustain export-oriented crops.

Climate change is increasingly calling these systems into question. Rising temperatures, more frequent droughts, heatwaves, floods and shifting rainfall patterns are altering the environmental conditions on which existing agricultural practices depend. In drought-prone regions, traditional rain-fed systems are facing **growing water scarcity and shorter growing seasons. In temperate regions**, increased climate variability is undermining yield stability, while extreme events can cause sudden and significant production losses. In tropical areas, higher temperatures and changing precipitation patterns threaten both crop **productivity and labor conditions**.

Systems optimized for efficiency under stable climates may **lack resilience** under increasing uncertainty, while small-scale and subsistence systems often **lack the resources needed to adapt**. As a result, climate change not only reduces productivity but also exacerbates food insecurity, rural poverty and inequality, particularly in regions already facing economic and environmental constraints.

Consequently, there is growing recognition that **existing agricultural systems must evolve**. From a FAO perspective, this implies a gradual shift toward more resilient **and diversified farming systems**, capable of coping with increased climatic risks while ensuring food security and sustainable livelihoods.

Possible innovations to implement

Innovations in agriculture to address climate change span agronomic, technological, biological, economic, and institutional dimensions. One prominent approach is **climate-smart agriculture,** which aims to combine productivity, climate adaptation, and greenhouse gas reduction. This includes adjusting planting calendars, diversifying crops, and using climate-resilient varieties. Agroforestry also plays a key role by integrating trees into farming systems that will enhance soil fertility, carbon storage, microclimates regulation, and erosion reduction.

An example of agroforestry, Portugal, 2023

Sustainable management of water and soil is another critical focus. Precision irrigation, rainwater harvesting, and the reuse of treated wastewater help optimize water use, while conservation agriculture practices (such as reduced or no-tillage, permanent soil cover, and crop rotation) improve soil health and water retention.

Technological innovations further support adaptation and efficiency. Precision agriculture leverages drones, satellites, and climate data to optimize the use of water, fertilizers, and pesticides, reducing both emissions and production costs. Climate services for farmers, including early warning systems for droughts or floods and seasonal forecasts, empower smallholders to make informed decisions.

Innovations in livestock systems aim to lower emissions and enhance sustainability. Improving animal diets, selecting for feed efficiency, integrating crop-livestock systems, and better managing pastures all contribute to reducing the carbon footprint while restoring degraded ecosystems.

Finally, **economic and institutional innovations** provide incentives for sustainable practices. Payments for ecosystem services reward farmers for carbon storage, soil protection, or biodiversity conservation. Climate-indexed agricultural insurance reduces financial vulnerability to climate shocks. Knowledge sharing and cooperative initiatives, both locally and internationally, facilitate the wider adoption of these innovations.

Key Players

CGIAR (Consultative Group on International Agricultural Research) develops climate-resilient crop varieties and sustainable farming practices. The **World Bank** and **IFAD** fund and support agricultural adaptation projects.

The **Green Climate Fund** finances climate-resilient agriculture initiatives globally.

National Ministries of Agriculture and Environment implement strategies and regulations at the country level.

Regional organizations like ECOWAS or the African Union coordinate cross-border knowledge sharing and programs.

Research institutions and universities advance innovations in agronomy, water management, and climate adaptation.

Finally, aggrotech companies and NGOs deliver technologies and on-the-ground support to help farmers adopt resilient practices.

Key Questions

- What type of agricultural system does my country have?
- Is my country at risk regarding climate change?
- What will my country gain from implementing new agricultural strategies?
- What type of innovations could benefit my country, through the FAO support or not?
- Are they any allies my country could collaborate with to pursue a common vision on adapting our agricultural models to climate change?
- Will my country benefit from an exterior help or suffer from it on climate adaptation?
- Is it in my country's interests to regulate its agro-industry?

International Organizations :

They promote international trade agreements, provide emergency food aid, and advise countries on agricultural development.

Agribusiness Corporations :

Large corporations that control the agricultural supply chains, including the production and distribution of food products. While they contribute to food availability, their practices sometimes prioritize profit over social responsibility, leading to market distortions and exacerbating food crises in vulnerable regions.

NGOs and Civil Society Groups :

These organizations advocate for better food access, promote sustainable farming practices, and work to address the social, economic, and environmental factors that lead to food crises. They often act as intermediaries between affected populations and international aid programs.

Key Questions

These are questions you can ask yourself to prepare your position paper and your intervention in the MUNL as delegates of a country :

- Is my country doing enough to tackle food insecurity despite global overproduction?
- How do international trade policies affect our national food security?
- How can we mitigate the impact of climate change on our food production?
- What steps can we take to ensure more equitable food distribution within our country?

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