



Food and Agriculture Organization Study Guide



FAO

Food waste and Food Lost



Chair letter

Dear delegates,

Welcome to the Food and Agriculture Organization committee in OdeMUN. We are more than thrilled to be your chairs and very excited to meet you all, hear your amazing ideas, get to know you, and have the best time.

We hope this committee will be meaningful for you guys and that together we can try and solve a bit of the world's issues, cooperate, meet new people, and mostly have a lot of fun and feel safe to try new things, improve ourselves, and do MUN.

You're chairs.

Know your chairs:

Hiiiiii!

My name is Shachar, I'm 16 years old and I live in a small kibbutz in the north. I'm a 11th grade student. In my free time, I like to read and travel.

I hope to make this conference interesting, fun, meaningful and that you will feel empowered to speak up your ideas, challenge perspectives, and have interesting debates.

If you have any concerns or questions, please don't hesitate to reach out at Shachar1ori@gmail.com I am here for you.



Introduction to the committee

The Food and agriculture organization (FAO) is a specialized agency of the United Nations that leads international efforts in order to address the hunger issue. The FAO goal is to achieve food security for all and make sure that people have regular access to enough high quality food- so they could live active and healthy lives.

The FAO works in over 130 countries worldwide, with 195 members and 194 countries+the European Union.

The FAO was born in 1945 in Canada. The first session of the newly created United Nations establishes the food and agriculture organization (FAO) as a specialized UN agency. Washington D.C. is designated as a temporary FAO headquarters.

Since the FAO was established, it has succeeded in addressing many issues by combating hunger and malnutrition, sustainable agriculture and fisheries, emergency response and food security, global food systems and policy, data collection and research, climate change and environmental sustainability, and more.

Background to the issue:

Definitions and key terms:

Food value chain- The steps that are involved in producing, processing; distributing, and consuming food. From the farm to the table.

Food waste- refers to food that is fit for consumption but consciously discarded at the retail or consumption levels and unnecessarily.

Example: If you're going to sleep and leaving your leftovers on the table instead of the refrigerator, you're wasting food.

Food loss- occurs before the food even reaches the consumer level as a result of issues in the supply chain(production, processing, storage, distribution).

Example: If a kitchen fire occurs and ruins all of your food It's a food loss.

Food insecurity- The condition where people lack access to enough nutritious food due to factors like poverty location, health issues, political instability, and food prices.

Food system- The entire network of activities related to food production, processing, consumption, and waste.

Resources efficiency- Using resources like water, land, and electricity effectively in order to minimize waste and maximize food production.



Chapter A: Food lost during production

Food loss during production encompasses various stages, including harvesting, transportation, storage, and processing and several factors contribute to this loss: Poor agricultural practices, such as improper irrigation techniques, soil degradation, and inadequate pest management, can reduce crop yields and increase susceptibility to diseases, resulting in significant food loss way before the harvest. Moreover, unfit storage facilities expose produce to spoilage, pests, and adverse weather conditions, leading to substantial losses post-harvest.

Inefficient harvesting methods, including manual harvesting or outdated machinery, can cause damage to crops, leaving portions unharvested or unfit for consumption. For example, a late harvest can bring losses like attacks by birds and other species, additionally, if grains are not properly dried after harvest, they can retain too much moisture, which may lead to the growth of mold. This mold can damage the grains, reduce their quality, and even make them unfit for consumption.

Farmers in remote areas often struggle to access markets promptly, causing perishable goods to spoil before they can be sold. Furthermore, poor infrastructure and inefficient supply chains result in delays and damage during transit, contributing to food loss. Insufficient investment in infrastructure and supply chains can increase food loss, whereas supportive policies of governments can help develop efficient systems to minimize waste. Another major factor influencing food loss is climate change, which leads to unpredictable weather patterns, droughts, and floods, adversely affecting crop yields and increasing the risk of food loss.

Globally, about 13% of food produced is lost between harvest and retail. This percentage is even higher in certain countries in Africa, reaching 19.9%. Certain food categories are more susceptible to loss; for instance, fruits and vegetables experience a loss rate of 31.2% before reaching retailers. These losses represent a significant waste of natural resources, including water, land, and labor, which could have been used to address global hunger and other SDG targets the UN set for itself.

Efforts to mitigate food loss at the production stage include the adoption of modern agricultural technologies and practices. For example, precision agriculture utilizes data analytics and GPS technology to optimize planting, fertilization, and irrigation, thereby reducing losses due to poor agricultural practices. Improved storage solutions, such as hermetically sealed bags and enhanced refrigeration systems, help preserve the quality of post-harvest produce. Investments in infrastructure, including

better roads and transportation networks, facilitate quicker and safer delivery of goods to markets, reducing losses during transit. Policy interventions, such as providing subsidies for modern farming equipment and offering training programs for farmers, can also play a significant role in reducing food loss during production.

Chapter B: Food waste at the consumer level

Food waste at the consumer level occurs in households, food services, and retail sectors. Consumers often purchase more food than needed, leading to spoilage and waste. If you buy 3 gallons of milk for the next 2 weeks, even if you only drink 1 gallon per week - the one that is left, after the 2 weeks, will go to waste. Misunderstanding of expiration dates also contributes to unnecessary food waste, as confusion over "best before" and "use by" dates causes consumers to discard food that is still safe to eat. Poor food management, including a lack of meal planning and improper storage practices, further increases the likelihood of food spoilage. Retail chains also contribute significantly to food waste by discarding edible food due to cosmetic standards and rejecting produce that does not meet aesthetic expectations. Also, 95% of cosmetic packages are thrown away and create waste.

Over-purchasing by consumers due to discounts aggravates the problem, as promotional offers encourage bulk buying, often resulting in excess food that ultimately goes to waste. There are also differences between household waste and retail food waste. Households contribute to waste through improper storage and over-preparation, while retailers waste food due to overstocking and stringent quality standards. Efforts to help consumers manage food better include public awareness campaigns, improved food labeling, and mobile applications that assist in meal planning.

An estimated 19% of total global food production is wasted at the consumer level, with households accounting for about 60% of this waste. In 2022, around 1.05 billion tonnes of food were wasted globally. Reducing food waste requires coordinated efforts at both individual and institutional levels, including policy changes, new ideas that the world hasn't tried before, and consumer education programs.

Innovative solutions are emerging to tackle food waste at the consumer level. For instance, startups are developing smart storage solutions that monitor food freshness and provide alerts to consumers, helping them use products before they spoil. Educational programs in schools and communities in some countries are

raising awareness about the importance of meal planning and proper food storage techniques. Retailers are also beginning to relax cosmetic standards and sell "imperfect" produce at discounted prices, making use of food that would otherwise be discarded. Additionally, food-sharing platforms are connecting individuals and businesses with surplus food to those in need, thereby reducing waste and addressing food insecurity simultaneously.

Most of the issues around food waste occur in the Western world, where excessive consumption and waste amplify global inequalities. In developing regions, food waste is often concentrated at the production and distribution stages due to poor infrastructure, while the West wastes vast amounts at the consumer level. This disparity wastes valuable resources like water and energy, which could help combat food insecurity in regions where hunger is widespread. Additionally, the environmental impact of food waste, such as greenhouse gas emissions, disproportionately harms vulnerable populations in developing countries, despite their minimal contribution to the problem.

Chapter C: The impact of food loss on hunger

Food loss and waste have significant implications for global food security. Resources such as water, energy, and labor invested in producing food that is ultimately discarded could have been utilized to address hunger. Food waste also exacerbates environmental issues by increasing greenhouse gas emissions and overuse of agricultural land. Food loss and waste account for approximately 8% to 10% of global greenhouse gas emissions, making it a significant contributor to climate change.

Hunger in developing and developed countries is affected differently by food loss and waste. In developing countries, food loss primarily occurs during production due to infrastructural challenges, while in developed countries, waste is more prevalent at the consumer level. Addressing these issues requires tailored solutions that account for regional differences in food systems.

In 2022, 783 million people faced severe food insecurity, while 1.05 billion tonnes of food were wasted globally. While hunger is a global issue, it disproportionately affects regions such as South Asia and parts of Latin America. In some places, food insecurity is compounded by both the loss of food during production and inadequate access to markets. In Asia, where population density is high, food insecurity affects millions despite large-scale production losses, exacerbating the need for sustainable solutions. If even a fraction of this wasted food were redirected, millions of lives could be positively impacted. Efforts to combat food waste, such as food recovery programs and better distribution networks, are essential in reducing hunger worldwide.

Current Situation:

Chapter A: Global food loss and waste today

1.3 Billion tons of food produced for human consumption is lost or wasted annually. This is way more than a big number, It has a far-reaching impact on global sustainability as this represents about 33% of the world's food production. Food loss and waste account for approximately 940 billion dollars annually, Including losses in production, storage, transportation, and consumption.

If you thought that food loss and waste aren't hurting the environment so badly- You're wrong. Between 8-10 % of global emissions are due to food loss and waste when wasted food decomposes and releases methane in landfills.

28% of global agricultural land is used in order to grow food that is never eaten.

Furthermore, 70% of global freshwater is used for agricultural purposes- When food gets wasted, it also leads to wasting all of the water that was used to produce it. **For**

example: Harvesting 1 kg of rice requires 1,500 liters of water, if we don't use the rice, we are also wasting all the water and other resources that are used to grow the rice. What impacts water security, particularly in regions with water security issues (the reliable availability of sufficient, safe, and clean water for human health, livelihoods, ecosystems, and economic development, while also managing risks like droughts, pollution, and climate change) such as Iceland, Norway, and New Zealand.

When food is disposed of in landfills it decomposes without oxygen and releases methane, a greenhouse gas that is 20 times more harmful than CO₂.

The esteemed cost of food waste is around 940 billion dollars annually.

In western developed nations, food waste is primarily at the consumer level due to over-purchasing, discarding leftovers, and cosmetic imperfections in the products sold at supermarkets.

In developing nations, food loss occurs primarily at the production and supply chain stages, caused by poor infrastructure, lack of storage, and inefficient transportation.

In Hungary, for example, each citizen wastes 65.5 kg of food annually, with about 49% of this being avoidable.

On the other hand, 800 million people globally are suffering from hunger, and most of them live in developed countries. Yet, 1.3 billion tons of food is wasted every year. And in the end, 25% of all food waste could be repurposed to feed 870 million hungry people if it would have been used effectively.

Chapter B: Regional disparities in food loss and waste

As mentioned before, In developed nations, food waste is mostly driven by consumer habits such as over-purchasing, discarding leftovers, and prioritizing aesthetics (products that are considered ugly are often discarded).

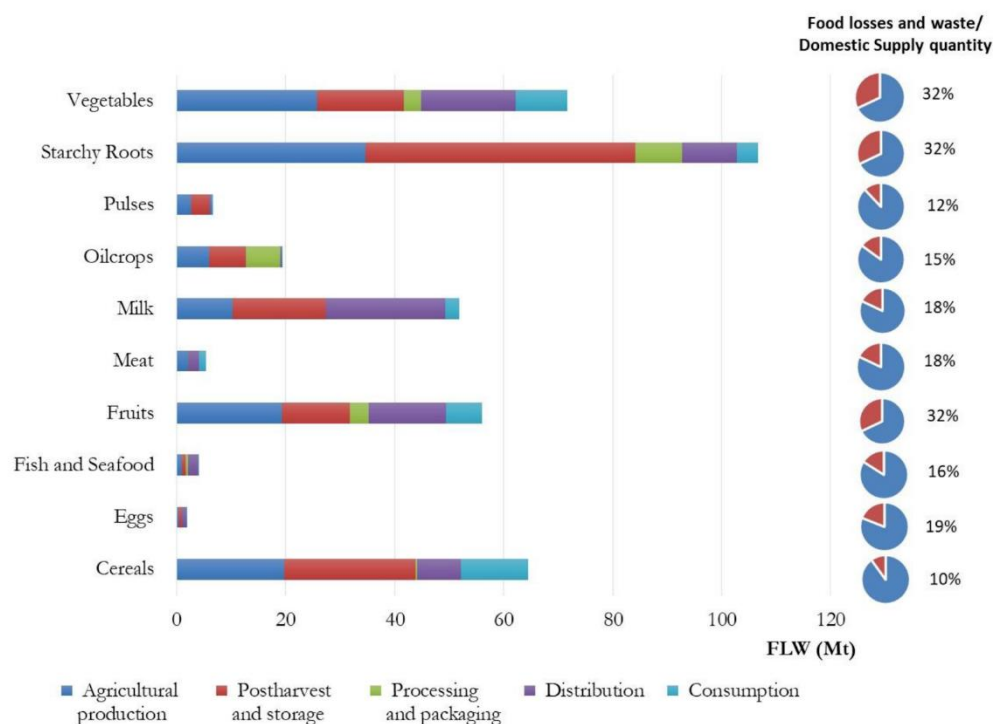
In the United States, between 30 to 40% of the food supply is wasted at the consumer level. In the United Kingdom, the average family's worth of food is 700£ annually, mostly because families over-purchased and leftovers are not consumed.

In developing nations, poor storage facilities lead to high rates of food spoilage before it even reaches the consumer. Lack of refrigeration and inefficient supply chains mean that food is often delayed in transport.

In India, 40% of fruits and vegetables are wasted due to inadequate infractions and lack of refrigeration during transportation.

Poor transportation networks in these developing countries often contribute to significant food loss, while roads are damaged leading to spoilage before the food reaches its destination.

In developed and developing countries, consumer habits have a huge role in contributing to food waste. Wealthier countries are facing food waste that is happening when the consumer discards food prematurely. In poorer countries, the waste is happening before the food even reaches the consumer.



Chapter C: Ongoing efforts and innovations to address the issue

In the past years, many countries, companies, and people have been trying to find solutions to address the pressing issue of food loss and food waste.

There are many policy initiatives, Such as:

- France's food waste law requires supermarkets to donate unsold food instead of throwing it away, banning food waste by restaurants and encouraging the redistribution of excess food to charities.
- Italy also passed a law that introduced tax breaks to encourage businesses to donate food for charity, allowing both large and small businesses to stop food waste and help these people in need.
- South Korea introduced a special recycling program which includes food waste disposal in special bins, which are later recycled into compost or energy.
- The United Kingdom government created a program through initiatives like “Love food- hate waste” that encourages citizens to reduce food waste by improving storage, using leftovers creatively, and understanding food expiration dates.

There are also many Technological innovations in order to address the food waste issue that helps redistribute food that would go to waste without it:

- “Too Good to go” allows its users to buy leftover food from restaurants at a discounted price.
- “Olio” allows neighbors to share surplus food in order for communities to reduce waste together.
- Some countries also developed apps that track food waste at the household level- allowing governments to be aware and able to act.

Good solutions are great, but they cannot work without the public awareness. Denmark launches a campaign to educate consumers about food waste and promote more sustainable consumption. The campaign includes educational programs in schools and media campaigns that highlight the economic and environmental cost of food waste.

Questions to consider:

1. What role do government policies play in reducing food loss and waste in your country?
2. How does food loss during production impact both the environment and food security in your country?
3. How can mobile applications contribute to reducing food waste at the household level?
4. What impact does food waste in landfills have on climate change, and what can be done to mitigate this effect?
5. How can households be incentivized to adopt better food management practices to prevent waste?
6. What are the economic consequences of food waste in your country and in the world as a whole, and how can this loss be converted into a resource to address hunger?
7. How can consumer purchasing habits be changed to prevent over-buying and reduce food waste at the consumer level?
8. Is your country a country with high food loss? How can countries with high food loss at the production level learn from successful strategies in other nations to tackle infrastructure challenges?
9. What actions have been taken in your country in order to address the issue?

Further reading:

1. <https://www.youtube.com/watch?v=VHg8cptfJTM>
2. <https://www.worldwildlife.org/stories/fight-climate-change-by-preventing-food-waste>
3. <https://www.youtube.com/watch?v=6iqXH9RPK1w>
4. <https://www.ellenmacarthurfoundation.org/>
5. <https://sustainabilitydefined.com/>
6. <https://flwprotocol.org/>

Bibliography:

1. European Commission. (n.d.). *Food safety: Food waste*. European Commission. Retrieved February 16, 2025, from https://food.ec.europa.eu/food-safety/food-waste_en
2. Harvard T.H. Chan School of Public Health. (n.d.). *Food waste: Sustainability*. The Nutrition Source. Retrieved February 16, 2025, from <https://nutritionsource.hsph.harvard.edu/sustainability/food-waste/>
3. FoodPrint. (n.d.). *The problem of food waste*. FoodPrint. Retrieved February 16, 2025, from <https://foodprint.org/issues/the-problem-of-food-waste/>
4. Papargyropoulou, E., Lozano, R., Krosnick, A., & Vasileiou, I. (2015). *The food waste hierarchy as a tool for the sustainability of food systems*. *Sustainability*, 7(6), 6457-6476. <https://doi.org/10.3390/su7066457>
5. Gustavsson, J., Cederberg, C., Sonesson, U., & van Otterdijk, R. (2011). *Global food losses and food waste: Extent, causes, and prevention*. *ScienceDirect*. <https://doi.org/10.1016/j.jfca.2018.02.012>
6. World Food Programme. (2021). *5 facts about food waste and hunger*. Retrieved February 16, 2025, from <https://www.wfp.org/stories/5-facts-about-food-waste-and-hunger>
7. FSSC 22000. (2023). *Guidance document: Food loss and waste (V6.2)*. Retrieved February 16, 2025, from <https://www.fssc.com/wp-content/uploads/2023/03/Guidance-Document-Food-Loss-and-Waste-V6-2.pdf>
8. WRAP. (n.d.). *Taking action: Food & drink sectors*. WRAP. Retrieved February 16, 2025, from <https://www.wrap.ngo/taking-action/food-drink/sectors>