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# DEBATE

# THE CHALLENGE OF REDUCING FOOD LOSS AND WASTE THROUGH DX AND AI APPLICATIONS



Programme International Scientific Event at the EXPO 2025 World Exposition in Osaka, Kansai - Call 2024 Agreement BPI/OSA/2024/1





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## What Is Food Loss and Food Waste?



**Food loss** is unintentional food waste that occurs during production, storage, and distribution, while **food waste** is the deliberate discarding of edible food by consumers, retailers, or institutions.



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# The Global Impact of Food Loss and Waste



Food loss and waste have a profound **global impact**, straining resources, contributing to hunger, escalating greenhouse gas emissions, and harming the environment, calling for **urgent action and sustainable solutions**.



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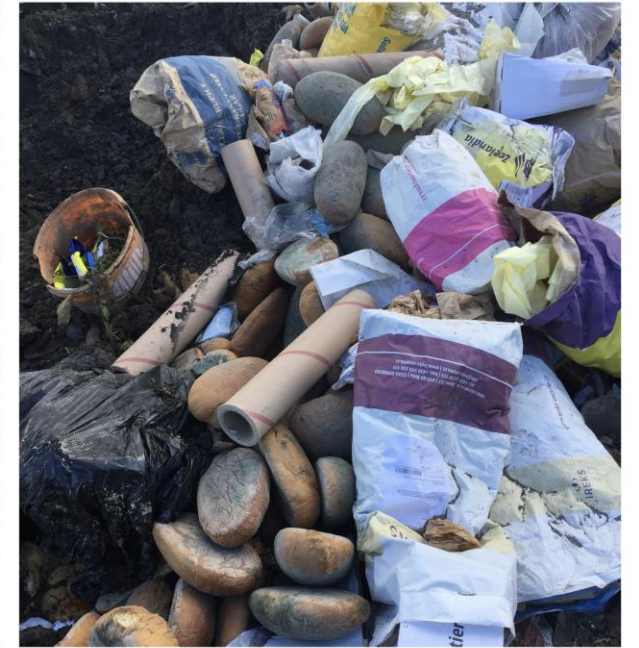
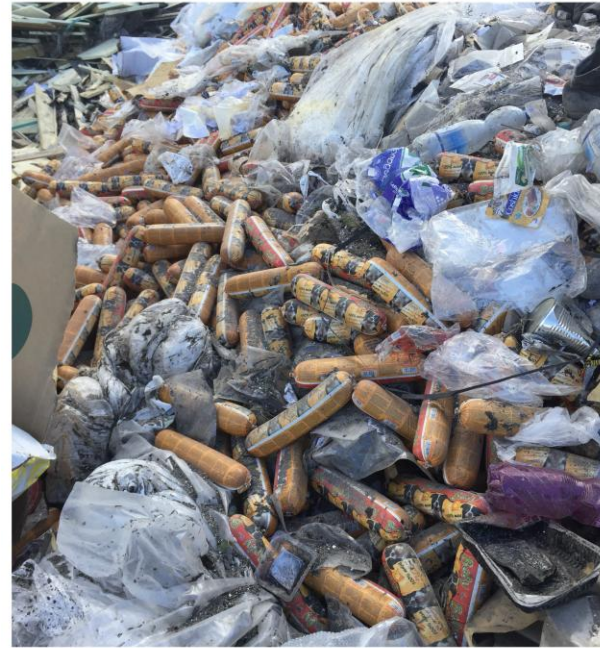


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## Causes of food loss and waste



Food loss and waste result from a **variety of causes**, including inadequate storage, transportation issues, market inefficiencies, consumer behavior, hygienic standards, and lack of awareness.





# Environmental Impact of Food Loss and Waste

- **Greenhouse Gas Emissions:** Food that rots in landfills produces methane, a potent greenhouse gas that contributes to climate change.
- **Resource Depletion:** The production of uneaten food consumes vast amounts of land, water, and energy, depleting natural resources.
- **Biodiversity Loss:** Agriculture practices linked to food waste, such as deforestation and habitat destruction, harm ecosystems and biodiversity.





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# Social and Economic Impact of Food Loss and Waste



Food loss and waste have significant social and economic impacts, leading to increased food prices, reduced income for farmers, and decreased food availability for vulnerable populations. This perpetuates poverty, food insecurity, and social inequalities in many regions.

<https://senoptica.com/food-waste-at-retail/>



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# Role of Consumers in Reducing Food Waste



Consumers **play a vital role** in reducing food waste by practicing mindful shopping, proper storage, and portion control, while also supporting sustainable food choices and being conscious of expiration dates.



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# Food Loss And Waste Reduction Initiatives

It encompasses various strategies, including improving supply chain efficiency, implementing stricter quality standards, and promoting food rescue and redistribution programs.

**Digital transformation (DX)** and **artificial intelligence (AI)** further enhance these efforts by enabling real-time monitoring, predictive analytics, and optimization of food distribution and consumption patterns.



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