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Source: <https://earth.org/what-is-food-waste/>

Global Food Waste Policies

A Comparative Analysis with the UAE

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Executive Summary

Introduction

Food waste and loss (FWL) is a critical global challenge with environmental, socio-economic, and ethical implications. In the UAE, a fast paced growing country with strong cultural norms of good hospitality and a fast paced tourism sector, the FWL has been a focus for the national government. This paper aims to evaluate existing global policies addressing FWL and assess the United Arab Emirates' (UAE) current situation, while identifying gaps and proposing recommendations.

Global Policy Benchmarks

A number of countries have developed successful FWL mitigation policies: France, Italy, Spain and Argentina have implemented anti-food waste laws that incentivize food retail businesses to redistribute food surplus rather than disposing it while South Korea's landfill ban has a 'pay-as-you-throw' system targeting households. Denmark, the UK and Australia are also amongst the countries that have taken measures to reduce their rates of FWL.

United Arab Emirates Current FWL Mitigation Strategy

In the GCC - KSA, Qatar and the UAE have aligned their respective efforts with the UN's SDG 12.3. The UAE developed the National Food Security Strategy 2051 which targets a 15% reduction in FWL. Initiatives like "Ne'ma" and the UAE Food Bank demonstrate localized efforts, while a trial project in the hospitality sector showed promising results in 2023.

FWL Mitigation Policy Categories

We've observed that globally policies fall into two categories—food waste prevention and food waste diversion. Prevention includes benchmarking, education, and better labeling standards while diversion involves food redistribution, waste recovery, and household-level initiatives like pay-as-you-throw taxes.

Alternative measures that we noticed have not been explored in policy development include addressing post-harvest losses, enhancing supply chain coordination, and investing in research and innovation.

Impact

South Korea's successful strategy saw a 95% reduction in food waste but faced high operational costs. While many countries focus on FWL diversion, prevention strategies are less common, indicating a gap in global approaches. South Korea's impactful strategy emphasizes the need for comprehensive, well-coordinated measures.

Conclusion

Global comparison reveals diverse FWL mitigation strategies, with most emphasizing diversion over prevention. The UAE lags in prevention strategies, providing an opportunity for development. Establishing a baseline and fostering a supportive framework are crucial steps in tackling FWL.

Recommendations for the UAE

Short-term actions include data collection, education initiatives, new labeling standards, and process improvements for food imports. Long-term strategies involve investing in diversion plants, implementing taxes on FWL-generating entities, and prioritizing a top-down approach to FWL prevention.

In conclusion, aligning with global best practices while addressing specific local challenges can position the UAE as a leader in effective FWL mitigation.

Introduction

Addressing Food Waste: A Global Perspective

Food waste and loss (FWL) is one of the most predominant socio-economical & environmental issues our planet faces today. It is a tremendously complex issue that has no “one-size-fits-all” solution.

The decomposition of discarded food in landfills significantly contributes to the emission of harmful gasses, which impacts our climate. Moreover, the ethical and social implications of discarding vast amounts of safe-to-eat food while populations suffer from malnutrition and hunger add to the urgency of mitigating FWL. Notably, the economic costs associated with FWL are staggering, amounting to approximately \$1 trillion worldwide annually, without considering the wasted water, land, and other valuable resources involved in food production ([FAO, 2022](#)). Given these multifaceted consequences, urgent measures must be taken to address FWL and its far-reaching effects.

Organizations and governments around the world are advocating for the reduction of FWL, in fact in 2015 as part of the United Nations’ Sustainable Development Goals (SDGs), Target 12.3 as published with the aim to “halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.” Indicators were also developed to measure the progress towards achieving this goal, such as the FAO’s [Food Loss Index \(FLI\)](#) and [Food Waste Index \(FWI\)](#) that measure FWL at different levels of the supply chain (FAO, n.d).



Source: <https://venngage.com/templates/infographics/food-waste-vs-loss-comparison-infographic-f7380bf9-2d4e-41c0-8658-017252eae35d>

With that being said, in 2019, 50% of the global population lived in a country that had targets set aligning with SDG Target 12.3 - some including Denmark, Italy, France, Japan, the US, Morocco, Qatar and the UAE as the only one to have done so that specific year (Flanagan, 2019). In 2023, for the first time, the European Commission proposed legally binding goals on food loss and waste which is an initial step to establishing a benchmark for further action at the national and regional level (Limpinksi, 2023).

However, the latest report shows that with 7 years left to go, action taken from governments is relatively slower than required to achieve those targets, establishing FWL as a more severe problem than previously announced.

On the other hand, large corporations reported significant reductions in FWL by adopting new measures in line with SDG Target 12.3 (Limpinski, 2023).

To that end, this paper intends to put forward the existing policies that tackle FWL around the world while assessing the current situation in the United Arab Emirates (UAE), with the aim of identifying the gaps and recommending appropriate measures.

Global Policy Benchmarks

Leading by Example: Successful FWL Policies

FWL mitigation is a global problem that could and should be solved by developing and implementing the right policies. In this section we identify the strategies implemented in different regions and countries around the world, while highlighting the “leading” governments in FWL mitigation. The countries below are selected based on their status as example countries in terms of being the first to implement such policies amongst neighboring countries. They are categorized as leading governments if some decline in FWL generation has been observed since the implementation of the strategy.

- The European Union (EU) introduced a series of measures to reduce food waste in its member states as early as 2016. In fact, the European Commission adopted the common methodology for the uniform measurement of food waste across the EU, inspired by the EU Waste Framework Directive which is a legislative act that all EU member states must work towards and achieve (EUR-Lex, 2023). Moreover, there was also the establishment of the EU Platform for Food Loss and Food Waste - a knowledge base for all people - which aims to support all actors in: defining measures needed to prevent food waste; sharing best practice; and evaluating progress made over time (European Commission).
- Germany’s National Strategy to Reduce Food Waste by the Federal Ministry of Food and Agriculture— has made reducing or avoiding food waste a national task in 2019. This includes: awareness campaigns “Too good for the bin!”, implementation of digital technology and its research to benefit mitigation of food waste, and baselining of the current situation to move forward (Federal Ministry of Food and Agriculture, 2022).

- Norway has a Food Waste Reduction Agreement "ForMat" (2017), led by Matvett and NORSUS in collaboration with the Ministry of Climate and Environment. This agreement has helped implement various anti-food waste measures such as more efficient labeling standards, incentivizing donating food surplus by eliminating VAT, and reducing sizes of packaged foods (One Planet Network, 2023).
- France was the first country to introduce an anti-food waste law in 2016. In 2013, there was a National Pact to Combat Food Waste which included 16 measures to combat food waste across the food chain through a collective commitment. In 2016, the loi Garot presented by the Assemblée nationale and the Senat, punished stakeholders within the food supply chain for discarding safe-to-eat food. In 2020 the anti-waste law for circular economy aimed to strengthen existing measures to fight food waste (RPFNUR, 2021). On January 1st 2024 the French government implemented mandatory composting for all organic waste including at household level.
- Italy has a similar law but instead incentivizes for food donations to reduce food waste in the LEGGE 19 agosto 2016, n. 166 implemented by the Italian Government (Condamine, 2020).
- Spain's anti-food waste law (2022) requires all sectors of the entire food chain from agricultural sector to retail and hospitality to develop a waste reduction program - announced by the Ministry of Agriculture, Fisheries and Food, and Environmental Affairs. Fines will be given to businesses who don't comply (Askew, 2022).
- UK: Courtauld Commitment 2030 (set-up by WRAP and supported by UK government) on food waste to deliver against UN SDG 12.3 is a voluntary agreement between orgs across the food chain (WRAP, n.d). In 2023, DEFRA announced the delay on the food waste reporting mandate for food businesses to 2026 (George, S., 2023).

- Denmark has a “Denmark against food waste” voluntary agreement bringing together 25+ food producers and retailers to fight FWL, in line with SDG Target 12.3. ONE\THIRD is the think tank responsible for uniting players within the food chain to mitigate FWL, they identify the players and have them sign a voluntary agreement which binds them to developing a methodology and metrics to measure food waste accurately. (PACE, nd).
- USA has anti-food waste legislations in 12 states using tax incentives, and liability protection initiatives (cf. Bill Emerson Good Samaritan Food Donation Act) (RTS, 2021).
- Argentina’s Ministry of Agriculture, Livestock and Fisheries introduced an anti-food waste law in 2019 incentivizing food businesses to donate food surplus while being protected from prosecution (Ministry of Agriculture, Livestock and Fisheries, 2019).
- South Korea’s government banned food waste from landfill in 2005. The households must pay for biodegradable bags for the pay-as-you-waste scheme, to dispose of food waste in separate bins. Radio frequency identification technology is used to weigh the waste and electronic identification tags are provided to each resident, to charge the residents at the end of the month (Sheldon, 2020).



Source: <https://www.midstory.org/taking-a-recycled-page-out-of-south-koreas-book-a-comparison-of-global-sustainability-practices/>

- In 2019, Japan's government published the Act on Promotion of Food Loss and Waste Reduction (Act. No. 19 of 2019) which aims to tackle the FWL issue aligning with SDG Target 12.3. The Ministry of Environment has created a portal site named the FWL Portal to provide information to all players including businesses, governments and consumers on FWL (MOE, 2023). Since 2012, Japan has seen a decrease in FLW generation from businesses and households from 6.42 tons in 2012 to 5.23 tons in 2021 (MOE, 2023).

- The law focuses on 4 major key points which are Food drives, Awareness campaigns on “doggy-bags”, Model projects and production of guides on success stories for local Japanese governments to influence other regions (MOE, 2023).
- The Kingdom of Saudi Arabia launched plans to reduce \$10.66 billion in food waste through a national program from the Ministry of Environment, Water and Agriculture and the Ministry of Municipal and Rural Affairs and Housing and the Saudi Grains Organization (SAGO) the leading entity on this project (Baig, 2022).
- In Australia, the Department of the Environment and Energy (2017) published the National Food Waste Strategy which provides a framework to support collective action towards halving Australia’s food waste by 2030. The first steps included financing an independent organization to develop an implementation plan: Stop Food Waste Australia governed by Fight Food Waste Ltd Board of Directors (Stop Food Waste Australia, 2023).

Current FWL mitigation Strategy

UAE's Approach to Food Waste Reduction

In the Gulf Cooperation Council (GCC), three countries have committed to the UN's SDG 12.3 target which are the United Arab Emirates, and the KSA, and Qatar. They have each independently developed their own FWL mitigation strategies, while the KSA and Qatar have both began their baselining exercise (World Government Summit, 2023). The GCC is considered a particularly vulnerable region to the issue of FWL because of a very generous and hospitality-centered culture, as well as their reliance on imports due to their hot and arid climates (World Government Summit, 2023).

Currently, in the United Arab Emirates (UAE), the National Food Security Strategy 2051 is set to include a framework that mitigates local FWL. In line with UN SDG 12.3, the set target is to reduce FWL by 15% in the next 28 years however the policy is still under development. The UAE also aims to position itself as one of the leading countries on the Global Food Security Index. As part of the National Strategy, the Ministry of Climate Change and Environment (MOCCA) and the Abu Dhabi Crown Prince Court have collaborated with the Emirates Foundation to launch "Ne'ma", the national initiative for FWL in charge of raising awareness, measuring FWL in the UAE, and enhancing the policy landscape. Ne'ma is essentially the custodian entity to deliver UN SDG 12.3 reduction target through the National Strategy on Food Loss and Waste Reduction.

Another FWL specific initiative was launched by Dubai Municipality in partnership with MOCCA to create the UAE Food Bank. Between 2017 and 2022 the food bank has donated 50+ million meals to those in need while partnering with around 200 food establishments to divert safe-to-eat food surplus from landfill.

Finally, in December 2023 Ne'ma announced during COP28 their most recent trial project involving the hospitality sector with the support of UAE's Behavioral Science Group, a specialized unit within the Office of Development Affairs. They partnered with 190 F&B outlets around the UAE over a period of 10 weeks where they collected data pre and post behavioral nudge implementation to observe an 8% decrease in food loss in those outlets (Saleh & Amir, 2023). This first-of-its kind national trial showed promising results for the implementation of easy and low-cost nudges to reduce food waste in the hospitality sector.



Source: ne'ma.ae

FWL mitigation policy categories

Strategic Approaches: Prevention vs. Diversion

The sections above have allowed us to categorize the different types of policies developed and implemented around the world that have proven to be effective towards reducing FWL. We have categorized these into two main categories and then sub-categories, as follows:

Food waste prevention

- Benchmarking - food waste reporting helps monitor progress, enables identification of areas in need of improvement, and ensures accountability in food waste reduction efforts.
- Education & Awareness - through government initiatives and campaigns, enhancement of school curriculums, "greener" marketing strategies for stakeholders within the food supply chain to encourage consumers to shop more efficiently, order smaller dishes, understand the implications of reducing food waste for the environment etc.
- Labeling standards - Improvement of date labeling standards on food products to avoid "expiry dates" as well as educating consumers on the meaning of the labeling terms.
- Food packaging - Reducing packaged food portion sizes at the food manufacturing level, and at the retail level, in addition to opting for more eco-friendly packaging.

Food waste diversion

- Food Redistribution - Regulating the development of food banks, establishing safety requirements and in some cases eliminating liability to food retailers and the hospitality industry to encourage them to donate food surplus. Positive and/or negative incentivization to encourage/punish retailers and restaurateurs to donate food surplus.
- Food Waste Recovery - Establishment of proper food waste management infrastructure to handle FWL such as composting and anaerobic digestions.
- Household level - Negative incentivization at the consumer level as “pay-as-you-throw” taxes for throwing away food in the households.
- Education & Awareness - educating consumers on how to compost at home and how to reuse leftovers.

Additional Considerations

Novel Approaches to FWL Mitigation

We have also considered alternative measures that have not been explicitly explored yet in countries around the world. These considerations arise from the deep understanding of the critical areas throughout the supply chain that pose threat to the FWL issue.

- Food loss reduction - address post-harvest losses by investing in improved storage facilities, transportation infrastructure and processing technologies, particularly in developing countries where food loss is more significant.
- Supply Chain Coordination - facilitate better coordination and communication along the entire supply chain to reduce inefficiencies and ensure that perishable goods are delivered to consumers promptly.
- Research and Innovation - Support research and development initiatives that focus on food waste reduction technologies, "recycling" methods, and innovative solutions to address FWL.

Impact

Insights from Successful FWL Strategies

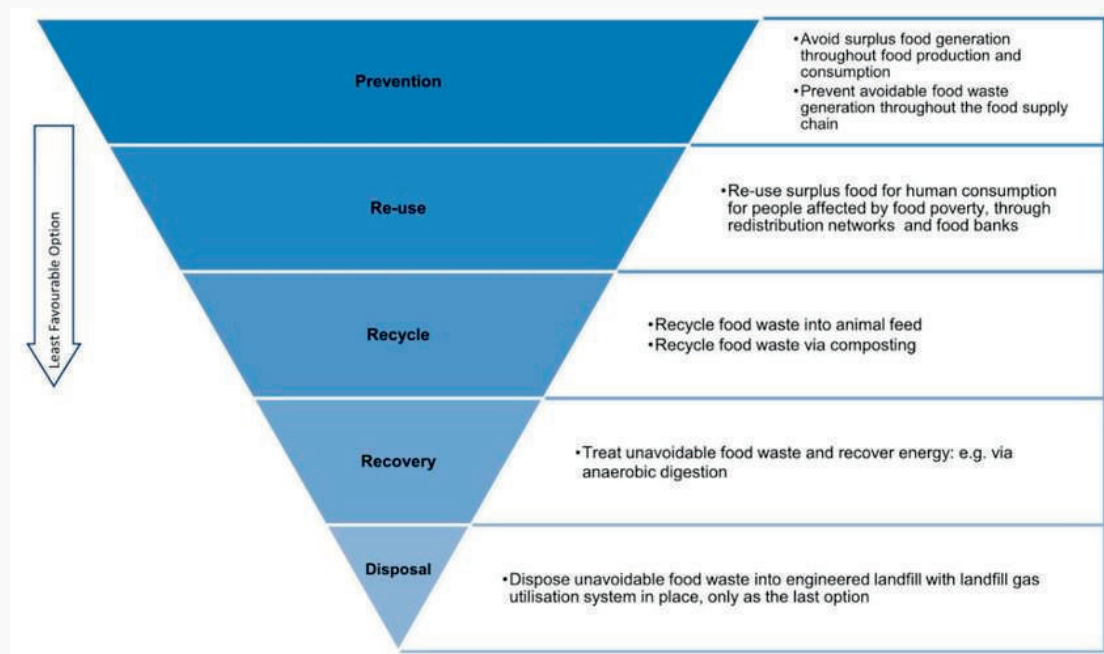
It is important to note that South Korea's strategy is the only one to have produced a tangible impact with an increased rate in food waste reduction of about 95% in 2019 compared to 2% in 1995 (Borsi and Murdi, 2023). However, one of the major drawbacks of this program is the cost to run it, which is said to reach \$600 million a year (Yoon, 2023).

Conclusion

Towards Sustainable Solutions: The Road Ahead

While comparing the different policies and laws adopted by different countries to reduce their FWL issues, we found that most countries have developed and adopted strategies while others have implemented specific anti-food waste laws. The most common measures adopted are in the FWL diversion category through food banks and food donations with the support of financial incentives.

However it is important to note that FWL prevention strategies and initiatives are not commonly found despite being at the top of the hierarchy pyramid of FWL management ([Papargyropoulou, 2014](#) - below).



With that being said, as far as identifying the gaps for policies that mitigate FWL, the UAE is still relatively far behind.

The lack of framework or policies that foster an environment enabling FWL reduction at source, and diversion at larger scale (composting plants and the likes) presents an opportunity for development and improvement.

There is also an important step that has been observed in almost all FWL mitigation plans around the world which is establishing a baseline. The baseline is the only way that progress can be tracked and analyzed and help realistic goals while maintaining accountability.

Recommendations for the UAE

Solutions for FWL Reduction

Short-term

- Collect Data to establish the current state of FWL in the whole country.
- Invest in education and awareness- in schools and through government initiatives for education at the consumer level (prevention and re-use/diversion)
- Develop new standards for labeling of food products (avoid expiry dates)
- Improve processes for importing food to avoid waste at customs.

Long-term

- Invest in FWL diversion plants such as composting and improve waste management infrastructure to allow for easier segregation of different types of waste.
- Implement taxes for FWL generating retail and Food and Beverage outlets.
- Implement household taxes for food waste generation (ie. South Korea)
- Identify a top-down approach to the food waste hierarchy (Papargyropoulou, 2014) that prioritizes prevention of FWL at source.

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