The Environmental Impact of Food Waste

The World Food Programme estimates that more than 780 million people across the globe are currently facing chronic hunger. Every year, about 9 million people are reported to die from hunger, including 3.1 million children. Yet, at the same time, roughly a fifth of all food that is produced in the world is lost or wasted due to one reason or the other. The U.S. alone wastes 92 billion tons of food annually. Food wastage, which includes both food loss and food waste, causes huge economic losses as well as severe damage to the world around us.

Wasting food isn't just a humanitarian or social issue - it's also an environmental one. The food cycle doesn't just end at our trash can. Food waste that ends up in landfills and rots produces a large amount of methane – a more powerful greenhouse gas than even CO2. The food wasted in landfills is responsible for roughly 8 percent of global emissions. Additionally, when we throw away food, we're also wasting the time, resources, and energy that went into creating the food initially.

What causes food waste?

Food loss happens at the production stage mainly due to insufficient skills, natural calamities, lack of proper infrastructure, and poor practices. Food loss happens before the food reaches the consumer.

Food waste occurs when edible food is intentionally discarded by consumers after the food spoils, goes past the expiration date, or simply gets thrown away.

At times, food waste can also happen due to overproduction. Overproduction occurs when restaurants, grocery stores, and other similar establishments order more food than they need, leading to an increase in perishable foods that are wasted. Forbes states "overproduction uses resources like fuel, water, fertilizer, increasing greenhouse gas emissions in the process. And then when food is wasted, you need landfill space and there's even more CO2 production."

On top of that, retailers tend to reject a lot of food because it doesn't conform to their quality and aesthetic standards. According to the UN Environment Programme's (UNEP) Food Waste Index Report 2024, of the 1.05 billion tons of food wasted in 2022, 19% of food from retail, food service, and households while 13% of food was lost in the supply chain.

Food waste in the United States

Around 35% of food produced in America goes unsold or uneaten. According to ReFed, if we recovered about half (46 billion pounds) of the food being wasted, we could feed every hungry person in the United States 3 meals a day, every day.

American consumers, businesses, and farms spend $218 billion, or 1.3% of their gross domestic product, growing, processing, and disposing of food that is never eaten. On average, businesses are taking a $74 billion loss on food waste every year.

Their research also shows that 43% of food wasted by weight – 27 million tons every year – occurs at home. The average American household family of four throws out about $1,600 in produce annually.

Impact of food waste on the environment

A 2013 FAO (Food and Agriculture Organization of the United Nations) report was able to discern a clear pattern in food waste at the global level. While middle and higher-income regions showed greater food loss and waste during the downstream phase (at the consumption level), developing countries were more likely to lose or waste food at the upstream phase due to a lack of proper harvest techniques and infrastructure.

The later the food is wasted along the chain, the greater its environmental impact because then we also have to take into consideration the energy and natural resources expended in processing, transporting, storing, and cooking it. If it was included in a list of countries ranked according to their greenhouse emissions, food waste would come in the third spot, right after the U.S. and China.

Food waste that ends up in landfills produces a large amount of methane – a more powerful greenhouse gas than even CO2. For the uninitiated, excess amounts of greenhouse gases such as methane, CO2, and chlorofluorocarbons absorb infrared radiation and heat up the earth's atmosphere, causing global warming and climate change.

With agriculture accounting for 70 percent of the water used throughout the world, food waste also represents a significant waste of freshwater and groundwater resources. It is said that the water used to produce just the food that is not eaten

each year is three times the volume of Lake Geneva in Switzerland (with a total water volume of 21 cubic miles). By throwing out one kilogram of beef, you are essentially wasting 25,000 liters of water that were used to produce that meat. In the same way, over 1,000 liters of water are wasted when you pour one liter of milk down the drain.

Around 3.4 million acres of land, which is roughly one-third of the world's total agricultural land area, is used to grow food that is wasted.

How to reduce food waste?

In 2020, FAO director Jose Graziano da Silva said, "in addition (to) the environmental imperative, there is a moral one: We simply cannot allow one-third of all the food we produce to go to waste when 870 million people go hungry every day."

To stop food waste, changes have to be brought in at every stage of the process – from farmers and food processors to supermarkets and individual customers. As a first step, priority should be given to balancing production with demand. This translates to lesser use of natural resources to produce surplus food that will rot in the field.

Secondly, more effort should go into developing better food harvesting, storing, processing, and distributing processes. If oversupply happens, steps should be taken to redistribute the food or divert it to people who are in need. Though the UN says that food production will have to increase by more than half to meet the demands of the growing population by 2050, the actual increase would be much

lesser if food waste was reduced.

Large restaurants, supermarkets, retail outlets, and individual consumers can also reduce their “food footprint” by identifying where waste occurs and taking steps to tackle the same, much like the City of San Diego did in January of 2022. Fruits which are misshaped or “ugly” are not necessarily bad and can still be bought and used in dishes like soups.

Consumers should also try to buy food in accordance with a meal plan so that they don’t end up wasting edible food. Food may be cheaper when you purchase in bulk, but in reality, you are not really saving money when all you are doing is chucking it in the bin at the end of the week.

If the food still ends up unfit for human consumption, it can be used for feeding livestock, saving precious resources that would have otherwise been used for producing commercial feed. If the food cannot be reused at all, then it should be used in compost or, at the least, recycled. The average home can divert about 330 lbs of food waste a year from local waste disposal facilities by adopting home composting into their day-to-day practices.