The Global FoodBanking Network®

Food Banks for People and the Planet

A study on food banking's prevention of greenhouse gas emissions

In 2021, members of The Global FoodBanking Network (GFN) recovered 514,537 metric tons of wholesome, surplus food to feed 39 million people, collectively mitigating 1.695 billion kilograms of CO2 equivalents (up from 1.487 billion in 2019). That's an environmental impact equal to reducing emissions from more than 365,000 passenger vehicles.[1]

Food banking is a "triple win," addressing hunger, food waste, and greenhouse gases (GHGs)

Food banks are well known for their role in alleviating hunger in communities around the world. But food banking also addresses another of the world's most pressing issues—climate change. By procuring surplus food for hunger relief, food banking is a vital response to the growing environmental threat posed by food loss and waste (FLW).

PEOPLE SERVED
39 MILLION

FOOD RECOVERED
514,537 METRIC TONS

GHGs MITIGATED
1.695B KILOGRAMS CO_2e

Expanding support for food banking can multiply its impact

One-third of all food is lost or wasted every year,[2] while 828 million people worldwide—150 million more than in 2019[3]—face hunger. That number is likely rising as we face a global cost-of-living crisis. This is not just a tragedy for those facing hunger but for the environment. FLW is estimated to produce 8 percent of all GHGs in large part due to methane emissions from food decomposition in landfills.[4] Although GHGs are measured as carbon dioxide equivalents (CO_2e), methane is a GHG that is 28 times more potent than carbon dioxide.

Food banks are a critical, community-based solution to hunger that simultaneously bolsters food system resilience, reduces FLW, and mitigates GHGs. Global commitments to food banking are essential for FLW prevention efforts to succeed. With increased support, food banks can multiply their impact, redirecting more surplus food to more people in vulnerable situations while further reducing GHGs.

A GLOBAL ACTION AGENDA

GOVERNMENTS

- Provide clear guidance on food safety procedures for donated food
- Standardize date labels for food and differentiate between quality-based and safety-based labeling
- Offer liability protection for food donations
- Offer tax incentives and remove barriers for food donations
- Adopt a national law or policy on food waste that includes food donation
- Increase support of formal and informal social protection systems
- Quantify FLW

BUSINESS

- Measure and manage FLW
- Develop and implement a global food donation policy
- Increase support for organizations that mitigate FLW

Wholesome food saved in 2021 by GFN member food banks

Enough to fill

172

Olympic-size swimming pools

Food loss and waste emissions

If GHGs from FLW were a country, they would rank

3rd

in emissions after the United States and China.[5]

Methane emissions caused by FLW are nearly equivalent (87%) to all global car and truck emissions.[6]

GHGs feed climate change, which can negatively affect:

Crop yields and animal growth rates and productivity

Nutritional quality and food safety

Human health

Water availability and quality, pests and diseases, and pollination

Gender equality

Livelihoods that depend on food systems

Methodology

To better quantify the impact food banks around the world play in ameliorating food waste and promoting a more sustainable environment, GFN has estimated the amount of GHGs (expressed in CO2e) mitigated through the redirection of healthy surplus food from landfills to vulnerable people. The estimate is a global total of agricultural and landfill impacts provided through the publicly available World Resource Institute's (WRI) Food Waste Value Calculator, an invaluable tool for which we are grateful. The estimation of GHG mitigation from food recycling by food banks includes informed assumptions, developed with sound methodology using validated internal survey data as well as authoritative external research.

We began by taking total food and beverage kilograms donated by product category,[7] data gathered for GFN through our annual Network Survey CY21, which provides overall information about the operations and impact of member food banks. In CY20 we introduced new standardized, detailed product category information not previously collected. We had high Network response, ensuring that the estimates are more accurate, inclusive, and reflective of Network activity than in the past.

This methodology is not directly comparable to previous estimates. While we had some product category information for some countries, for others for which we had no or incomplete data, we applied a Network average as a proxy. In the past, in order to ameliorate any unexpected, severe changes in distribution levels (likely due to circumstances not associated with regular growth or decreased market share, but rather circumstances like a natural disaster or food bank closure), we used three-year averages of distribution totals from 2017 to 2019 (or the data available).

In addition to assessing the GHG emissions that were alleviated by GFN member food banks' recovery and redistribution efforts, we have elected to provide an estimate of landfill space saved through food banking (for illustrative purposes only).

Using an estimate of GFN's number of food kilograms rescued from landfill, we come to a total, which we then converted into pounds. Using a calculation from Waste360, a leading global professional association of solid waste, recycling, organics, and sustainable communities, we assumed that landfill food waste weighed 2,000 pounds per cubic yard.[8] Therefore, GFN redirects what would become 567,179 cubic yards of food waste and puts it to good use.

There are many additional losses represented in FLW that go beyond the scope of this project. Calculations not undertaken in this study, but no less important, include the nutrients lost, the transportation to the landfill, the landfill construction, dumping fees saved, the land use during production, water used to irrigate crops, labor, and the many facets of wasted production time, product, and labor, including the packaging, labeling, transportation, inspection, quality control, and storage. Many of these are unquantifiable yet represent great loss at all stages of the supply chain.

Endnotes

[1] US Environmental Protection Agency (EPA), *Energy and the Environment: Greenhouse Gas Equivalencies Calculator* (Washington, D.C.: EPA, March 2022), https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

[2] Food and Agriculture Organization of the United Nations (FAO), *Food Wastage Footprint & Climate Change* (Rome: FAO, 2015), https://www.fao.org/3/bb144e/bb144e.pdf.

[3] FAO, *The State of Food Security and Nutrition in the World 2022* (Rome: FAO, 2022), https://www.fao.org/publications/sofi/2022/en.

[4] FAO, *Food Wastage Footprint: Impacts on Natural Resources (Summary Report)* (Rome: FAO, 2013), https://www.fao.org/3/i3347e/i3347e.pdf.

[5] FAO, *Food Wastage Footprint: Full-Cost Accounting (Final Report)* (Rome: FAO, 2014), https://www.fao.org/publications/card/en/c/5e7c4154-2b97-4ea5-83a7-be9604925a24.

[6] FAO, *Food Wastage Footprint & Climate Change*.

[7] This total does not include purchased products or valuable nonfood items distributed by food banks such as personal hygiene and cleaning products.

[8] Chaz Miller, "Food Waste," Waste 360, October 1, 2005, https://www.waste360.com/mag/waste_food_waste_3.