



International Day of Awareness of Food Loss and Waste

For Prelims: [International Day of Awareness of Food Loss and Waste](#), [Food and Agriculture Organization](#), [Natural disasters](#), [2030 Agenda for Sustainable Development](#), [Greenhouse gas](#), [Methane](#), [United Nations Environment Programme](#), [Farmer Producer Organisations](#).

For Mains: Impact of Food Loss and Waste on Food Security in India, Environmental Consequences of Food Waste

Source: FE

Why in News?

Recently, on **29th September**, the world observed the [International Day of Awareness of Food Loss and Waste \(IDAFLOW\)](#), highlighting its implications for [food security](#) and [environmental sustainability](#).

- A 2023 report by the [Food and Agriculture Organization \(FAO\)](#) reveals that about **30% of global food production is lost or wasted**, which could feed the hungry. This urgent issue demands immediate action, especially in **India**, where [post-harvest](#) losses are significantly high.

Key Terms

- **Food Loss:** It refers to a decrease in **mass (dry matter) or nutritional value (quality)** of food intended for human consumption.
 - This occurs primarily due to **inefficiencies in food supply chains**, including poor infrastructure, inadequate logistics, lack of technology, and insufficient skills and management. Additionally, [natural disasters](#) contribute to these losses.
- **Food Waste:** It refers to food suitable for human consumption that is **discarded**, whether due to **spoilage or exceeding its expiry date**.
 - This waste can result from factors such as **market oversupply or individual consumer shopping and eating habits**.
- **Food Wastage:** It refers to any food lost by **deterioration or waste**. Thus, the term “wastage” encompasses both food loss and food waste.

What is the International Day of Awareness of Food Loss and Waste?

- The IDAFLOW, designated by the [United Nations General Assembly \(UNGA\)](#) in 2019, focuses on the critical issue of [food loss and waste \(FLW\)](#), it aims to raise awareness and mobilise efforts to reduce FLW, highlighting the need for financial support to achieve [climate goals](#) and the [2030 Agenda for Sustainable Development](#).

- The initiative aligns with **SDG Target 12.3**, which aims to halve global food waste and reduce food losses by 2030, and is linked to the [Kunming Montreal Global Biodiversity Framework](#).
 - Reducing FLW is a climate solution that requires increased [climate finance](#).

What are the Implications of Food Loss and Waste (FLW)?

- **Impact on Food Security:** According to a study published in *Nature*, approximately **29% of the global population experiences moderate to severe food insecurity** while one-third of food produced (1.3 billion tonnes) is lost or wasted.
 - FLW contributes to a significant **decrease in the availability of food for consumption**, exacerbating hunger and [malnutrition](#), especially in vulnerable populations.
- **Environmental Consequences:** Enormous resources **land, water, energy, and labour** are wasted alongside food, contributing to the depletion of natural resources.
 - **Carbon Footprint:** Food wastage generates **3.3 billion tons of CO2 equivalents** annually, contributing heavily to [global greenhouse gas \(GHG\) emissions](#).
 - **Water Usage:** The amount of water wasted on uneaten food is equivalent to the **annual flow of Russia's Volga River or three times the volume of Lake Geneva**.
 - **Land Usage:** Nearly **1.4 billion hectares of land** are used to produce food that is ultimately wasted, roughly 28% of the world's agricultural land.
 - **Energy Waste:** About **38% of total global food system energy** is consumed in producing food that is lost or wasted.
 - **Methane Emissions:** Food waste in landfills produces [methane](#), a greenhouse gas far more potent than CO2, thus accelerating [climate change](#).
 - **Climate Goals:** The agricultural sector's inefficiencies make it difficult to meet **global climate targets**, as emissions from food systems account for up to **37% of all GHG**.
- **Economic Impacts:** The economic costs associated with FLW are significant, leading to lost income for producers and higher prices for consumers.
 - Food prices often fail to reflect the **true social and environmental costs of food production**, resulting in market inefficiencies and reinforcing inequalities.

How Significant are FLW in India?

- **Post-Harvest Losses:** According to the [National Bank for Agriculture and Rural Development Consultancy Services \(NABCONS\)](#) survey conducted in 2022, India incurs food losses worth Rs 1.53 lakh crore (USD 18.5 billion).
 - Major losses include 12.5 million metric tonnes of [cereals](#), 2.11 million metric tonnes of [oilseeds](#), and 1.37 million metric tonnes of pulses.
 - Around 49.9 million metric tonnes of horticultural crops are lost annually due to inadequate cold chain infrastructure.
 - **Key Causes of Post-Harvest Losses:** A survey by **Indian Council for Research on International Economic Relations (ICRIER)** found that food loss largely occurs during **harvesting, threshing, drying, and storage** due to low levels of mechanisation.
 - Poor storage facilities contribute to roughly **10% of total food grain losses in India**, according to the **Indian Grain Storage Management and Research Institute (IGSMRI)**.
- **National Food Loss:** The [United Nations Environment Programme \(UNEP\)](#) estimates that **India wastes 74 million tonnes of food each year**, representing a loss of 92,000 crore rupees.
 - **Food waste in restaurants** stems from overproduction, large portion sizes, and the complexity of offering a wide variety of dishes, leading to spoilage.
 - Additionally, customers often **over-order, leaving food uneaten or discarded**. A lack of awareness among staff and patrons about the economic, social, and environmental impacts further exacerbates the problem.
 - According to the **UNEP Food Waste Index Report 2021**, Indian households generate **50 kg of food waste per capita per year**, resulting in a total of 68,760,163 tonnes annually.

Why is Reducing FLW Crucial for India's Future?

- **Climate Change:** Reducing food wastage could significantly lower GHG emissions, addressing a key contributor to **climate change**.
 - Reducing FLW can cut emissions by as much as 12.5 gigatons of CO₂ equivalent (Gt CO₂e), which is equivalent to removing emissions from 2.7 billion cars from the road.
 - By minimising FLW, the strain on natural resources like water and land, can be significantly reduced to ensure that more food reaches those in need.
- **Food Security:** Globally, Between 691 and 783 million people faced hunger in 2022 . As per the [Food and Agriculture Organization \(FAO\)](#), over 74% of India's population is unable to afford a healthy diet.
 - With millions of people in India still **malnourished**, cutting food loss could help ensure that **more food reaches those in need**, particularly in times of crisis.
- **Economic Efficiency:** By improving post-harvest processes, India can enhance farm productivity, reduce waste, and **boost farmer incomes**, fostering a more resilient agricultural economy.

What are India's Initiatives to Combat Food Loss and Waste?

- **Pradhan Mantri Kisan Sampada Yojana:** It is a central sector umbrella scheme by the Ministry of Food Processing Industries (MoFPI) aimed at reducing food loss and waste through the development of robust **food processing and preservation infrastructure across India**.
 - **Key Components:**
 - **Cold Chain, Value Addition & Preservation Infrastructure:** Establishes [integrated cold chain, preservation infrastructure and value addition Infrastructure](#) to minimise post-harvest losses.
 - **Mega Food Parks:** Aims to streamline food processing and distribution (was discontinued by the Government of India in April 2021).
 - **Agro Processing Clusters:** Promotes localised food processing units to reduce food wastage and enhance local supply chains.
 - **Operation Greens:** Provides credit linked financial aid in the form of grants-in-aid / subsidy is provided for establishing food processing projects leading to creation of food processing and preservation infrastructure facilities.
- **Save Food, Share Food, Share Joy (IFSA):** This initiative, led by the [Food Safety and Standards Authority of India \(FSSAI\)](#), brings together various stakeholders to prevent food loss and waste throughout the supply chain. It also facilitates the safe distribution of surplus food.

International Models Addressing Food Waste

- **Incentives for Businesses:** In the US, the **Protecting Americans from Tax Hikes (PATH) Act of 2015** introduced enhanced tax deductions for food donations, encouraging businesses to donate excess food.
- **Italy's Incentive Model:** Italy has allocated approximately USD 10 million annually to reduce one million tonnes of food waste by offering businesses incentives to donate food to charities.
- **UN Global Food Loss and Waste Protocol:** It is a global standard for the measurement of food loss and waste. It was proposed as an **indicator for the SDG target 12.3**, regarding processing, retail, consumers.
 - It can be used by both countries and companies to measure FLW within their borders and supply chains.

What Actions are Needed to Address FLW?

- **Promote Mechanisation:** Farmers using mechanised equipment like combine harvesters report significantly lower losses in paddy production. However, only a small percentage of Indian cultivators own such machinery.

- Expanding mechanisation through **Farmer Producer Organisations (FPOs)** and **Custom Hiring Centres (CHCs)** can make technology more accessible to small and marginal farmers, reducing on-field losses.
- **Improve Storage and Packaging Solutions:** Traditional storage methods, including **sun drying and jute packaging**, are prone to **contamination, quality degradation**, and spoilage due to rodent attacks or pilferage.
 - Implementing **solar dryers, airtight packaging**, and upgrading India's grain storage capacity by **70 million metric tons (MMT) over five years**, as planned by the government, could significantly **curb post-harvest losses**.
- **Waste Management Protocols and Recycling:** Adopting the **UN Global Food Loss and Waste Protocol** could enable India to quantify food loss across the value chain and develop targeted solutions.
 - **Recycling** food waste into **compost, biogas, or energy** provides a sustainable way to manage excess production and post-harvest waste.
- **Redistribute Surplus Food:** Surplus food can be redistributed to those in need, reducing hunger and food insecurity. Alternatively, surplus food can be converted into animal feed or organic manure, offering an effective **recycling solution**.
- **Consumer Responsibility:** Consumers play a vital role in reducing food waste by **purchasing only what is necessary**.
 - Changing consumer behaviour through awareness campaigns can drive responsible consumption patterns.
- **Adopt Innovative Technologies:** Innovations such as **mobile food processing systems**, better logistics, and **e-commerce** platforms can help bridge the gap between food production and consumption, reducing inefficiencies in storage, transportation, and distribution.
- **Food Collection from Social Events:** Social events often lead to significant food wastage. **City-based organisations** are already collecting surplus food from events and distributing it to slum areas, addressing both food waste and hunger.
- **Align Food Production with Demand:** To minimise **resource wastage, aligning food production with actual demand** can optimise the use of water, energy, and land, ensuring that excess resources are not expended on food that will eventually go to waste.

Conclusion

Reducing food loss and waste in India is not just a matter of improving economic efficiency; it is about **safeguarding food security for millions** while mitigating **environmental damage**. Technological innovations, along with supportive policies, can pave the way for reducing food wastage by 50%. As India moves toward a **sustainable future**, addressing food loss and waste is an essential part of the solution to feeding its population and protecting the planet.

Drishti Mains Question:

Discuss the implications of food loss and waste on food security in India. What measures can be taken to address this issue?

UPSC Civil Services Examination Previous Year Question (PYQ)

Mains

Q. What are the challenges and opportunities of food processing sector in the country? How can income of the farmers be substantially increased by encouraging food processing?(2020)

Q. Food Security Bill is expected to eliminate hunger and malnutrition in India. Critically discuss various apprehensions in its effective implementation along with the concerns it has generated in WTO.(2013)

