

Waste Food Management: Issues and Challenges

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Abstract

The major challenge today the World is facing is scarcity of food. The quality of available food i.e. the presence of chemical additives, preservatives, etc. Almost about 97 million people are dying without food. Even those who are getting food are facing health related issues. In these technology driven World where everyone is ordering food through internet or mobile phones the major issue is if the food is not delivered properly or if the order is cancelled then the food is wasted. So the propose system has a one sought of solution for this problem. Basically the idea is to collect the leftover or cancelled food from the hotels and deliver it to the NGO's so that the needy would get the benefit instead of just throwing it in dustbin. This process entirely takes place through web where if the food is left in the hotel the Hotel would raise a flag saying that I have leftover food and that would be hosted in the website, so now any social activist can just collect that food and deliver it to the NGO. It benefits the hotel as the food or not thrown away and NGO's get the food for their needs.

Keywords: Food Management; Food Delivery; Social Service; Website, scarcity of food

INTRODUCTION

[1] Food waste can be referred to as a "wicked problem," which is described as being unstructured, cross-cutting, and unrelenting also We go over these characteristics of food waste as a terrible issue in greater detail.

First and foremost, food waste is an "unstructured problem" due to the lack of a common problem definition and the difficulty in determining its precise causes and effects Despite the fact that there is a growing body of research focusing on the quantification and measurement of food waste, we adopt a comprehensive viewpoint and take into account all types of food surplus, loss, and waste within the food chain. Despite the fact that there are numerous definitions of food waste, it is crucial to focus on solutions. One way for assessing alternative solutions is the India hierarchy. It refers to the sequence in which the United States (UN), the European Union (EU), and other political entities recommend taking steps.

Second, food waste is a "cross-cutting problem" because it affects everyone involved in the food system, from farmers to consumers. However, statistics indicate that food waste primarily occurs at the bottom of the food chain in developed nations: by distributing food, particularly to households. According to the FAO, nearly one-third of the edible food produced, or 1.3 billion tonnes yearly, is lost or wasted. More than 40% of food waste in wealthy countries comes from consumers and retailers. In contrast, the majority of food losses and waste in developing nations occur after harvest and during processing.

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For food safety measures, anti-waste campaigns [6] were launched. Numerous slogans such "Waste

Not, Want Not," "Waste of Food Helps the Enemy Greatly," and "Save the Food of the Nation" were printed on flyers, posters, and pamphlets.

Last but not least, food waste is a "relentless problem" that cannot be fixed once and for all. In order to solve wicked problems, a variety of actors must participate in a variety of activities at various levels.

LITERATURE REVIEW

[2] Families spit out a lot of food at social and family events, weddings, restaurants, and hotels. Indian households waste 68,760,163 tonnes of food annually, or 50 kilograms per person, according to shocking statistics. According to the Food Waste Index Report 2021 of the United Nations Environment Programme, India wastes 40% of its food, or Rs 92,000 crore, each year.. Food waste accounts for approximately 1% of GDP. The Indian government's Ministry of Agriculture says that every year, 50,000 crore INR worth of food is wasted.

Food loss and waste endanger the sustainability of our food systems. Food loss or waste results in the loss of all the resources used to make it, including labour, money, land, water, energy, and capital. Food waste is expected to have an annual carbon footprint of 3.3 billion tonnes of CO₂ equivalent.

The issue of food waste we face today is not solely the result of policies implemented by the government; rather, our culture and customs are also playing a major role in this drama. Therefore, reducing food waste is a single action that can contribute to the improvement of both our nation and our planet. It's a simple habit that only requires minor adjustments to our current food consumption and storage routines.

PROBLEM STATEMENT

[3] Food waste has been a problem for years and is becoming worse. Several of us didn't really start to pay attention until the COVID-19 pandemic struck in 2020.

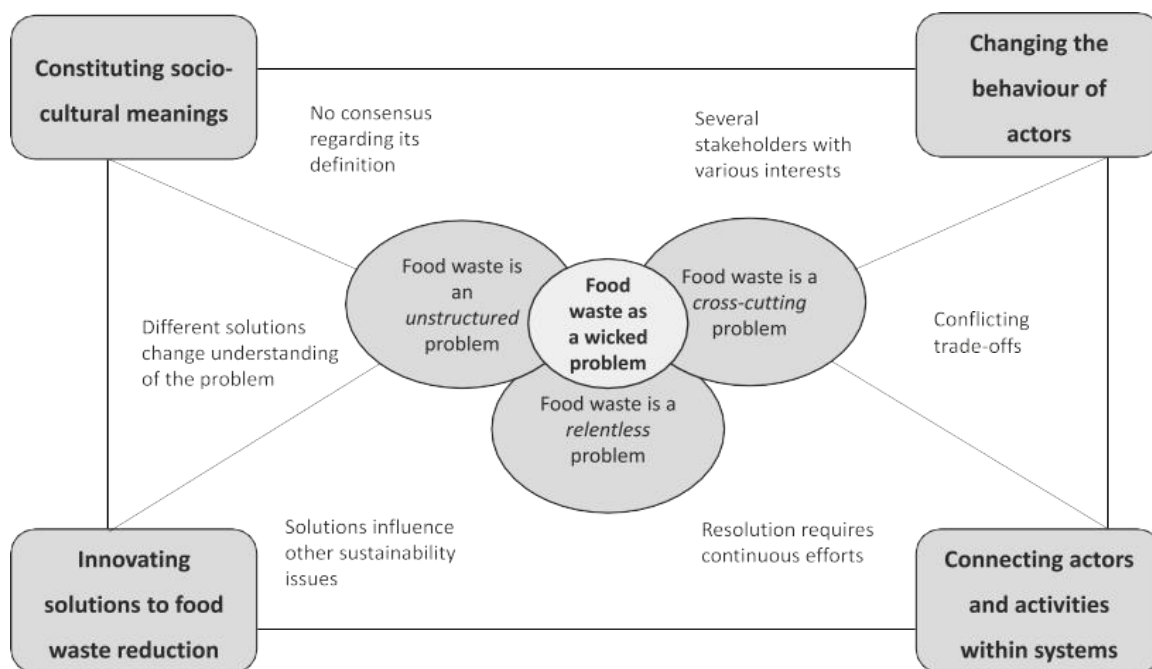


Figure 1. Food Safety.

50 kilogrammes of food are thrown away annually by Indian homes, according to the Food Waste Index Report 2021. Most of the time, this excess food waste ends up in landfills, where it produces powerful greenhouse gases with serious effects on the environment (Figure 1).

According to the UN Food and Agriculture Organization, approximately 190 million Indians are still malnourished despite adequate food production. Additionally, it mentions that every third child in India is malnourished. Ironically, the same report points out that around 40% of India's food is lost or wasted. In addition, the annual value of food waste in India is estimated to be around 92,000 crores.

Waste of food as a result of online cancellations:

1. There are between 75 and 90 million deliveries each month in India.
2. According to the swiggy index, approximately 1% of meals are skipped monthly.
3. 3Monthly food waste amounts to approximately 1300-1600 tonnes.

Currently, those wishing to donate supplies must visit the organization in person and donate food or other items. Otherwise, you should look for websites that donate surplus food. Large manufacturers.



Figure 2. Stop Food Wastage.

Wholesalers and organized communities typically ship food to food banks or throw away large amounts of food every day. I need to locate a charity that requires meals. Getting in touch with the organisation and confirming their needs takes a long time. They must go to another organisation if they do not require meals. This wears down the donor Figure 2.

Food Function

The primary purposes of food are to quell hunger and provide vital nutrients.

Various Features are:

- Physiology
- Social Features
- Mental Functions.

7.4% of the 931 million tonnes of food wasted globally in 2019 came from Indian homes. On average, households worldwide throw away 74 kg of food annually. In India, it is as low as 50 kg (68.8 million tonnes per year) per household. In contrast, the US wastes 59 kg (19.4 million tons) per household and China wastes 64 kg (91.6 million tons) per household.

RESEARCH METHODOLOGY

A google form was used to survey different users about their opinion on Food Wastage (Figures 3 and 4).

Do you think there is still wastage of food in India?

30 responses

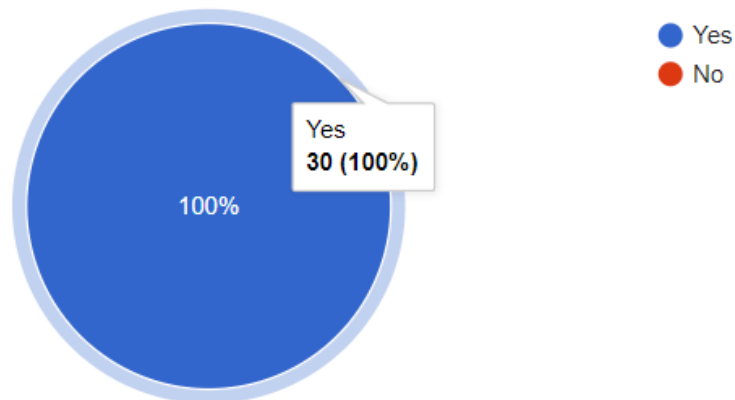


Figure 3. Wastage of food in India.

What are the sources of Waste Food?

30 responses

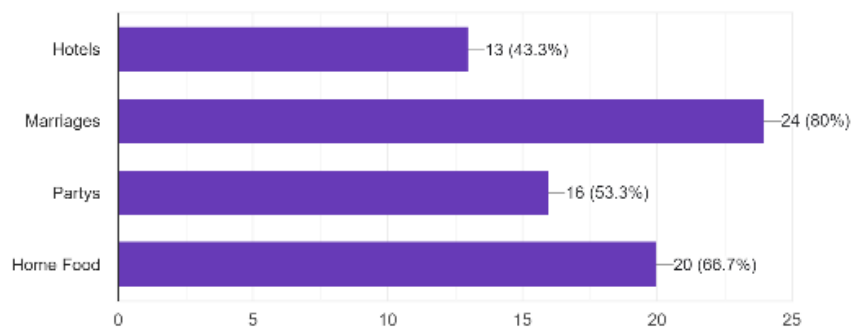


Figure 4. Sources of food waste.

What should be done with leftover Food?

30 responses

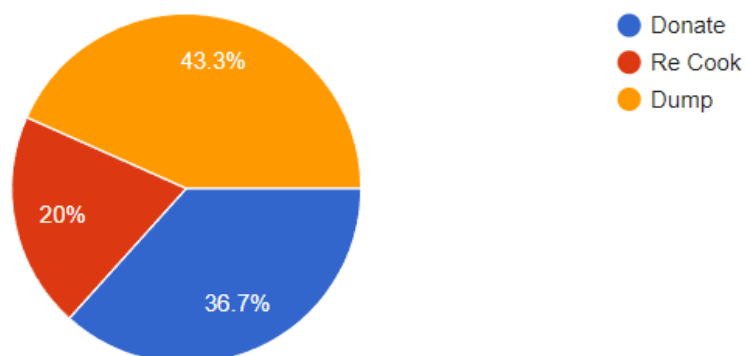


Figure 5. Leftover food.

Do you prefer 3rd Party Website for Donating Food like AkshayPatra and RotiBank?

30 responses

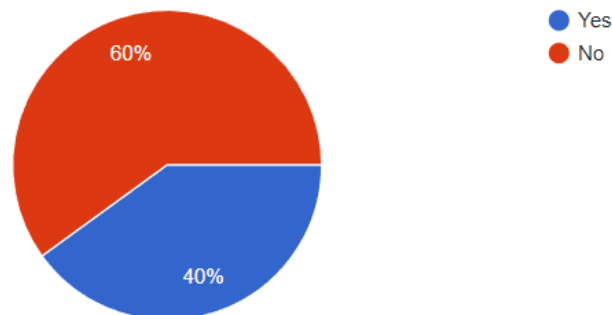


Figure 6. Food donation.

What if any website donates leftover food from hotel to NGO's

30 responses

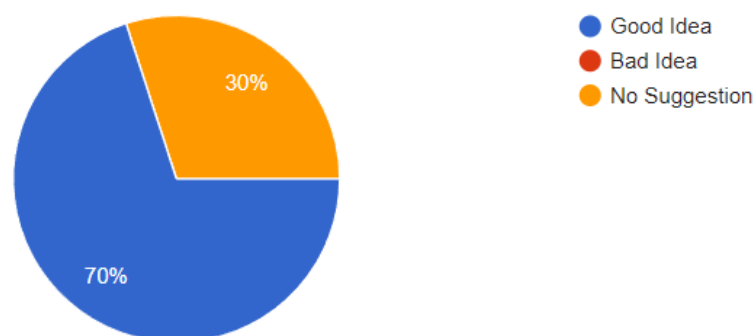


Figure 7. Food donation website.

We can infer from the report that food is wasted in India at a rate of 100%. There are various sources of waste Food such as marriages, hotels, party, and Home Made. Out of which Marriages and Home Made account for the majority of wastage of Food. Out of 30 responses, 43 percent of people dump their food which is a serious issue. 60 percent of people doesn't have any idea about Food Donation platforms like Roti Bank and Akshay Patra. 70 percent of people opted for a website for delivering leftover food to NGOs through Website (Figures 5-7).

SOLUTIONS

The food donation software serves as an interface for customers and hotels searching for a way to donate extra food without wasting it. By informing neighbouring users of the specifics of the available food, it enables us to give the surplus food. The necessary users respond to the notification. The food items are distributed according to priority by the system (Figure 8).

Hotel

- *Register:* The hotel can register itself for donating food.
- *Add food:* After logging in the Hotel user can add food for donation.
- *Submit Donation:* The Hotel user can submit food for donation

User

- *Register:* The user can register themselves for donating food.

- *Accept food*: After logging in the user can select food from the hotel for donation (Figure 9)
- *Submit Donation*: The user needs to submit food to the NGO

NGO

- *Register*: The NGO can register themselves for donating food.
- *Accept food*: After logging in the NGO can select food from the hotel for donation.
- *Conform Donation*: The NGO needs to submit a donation form for confirming the Donation and it is updated for the user.

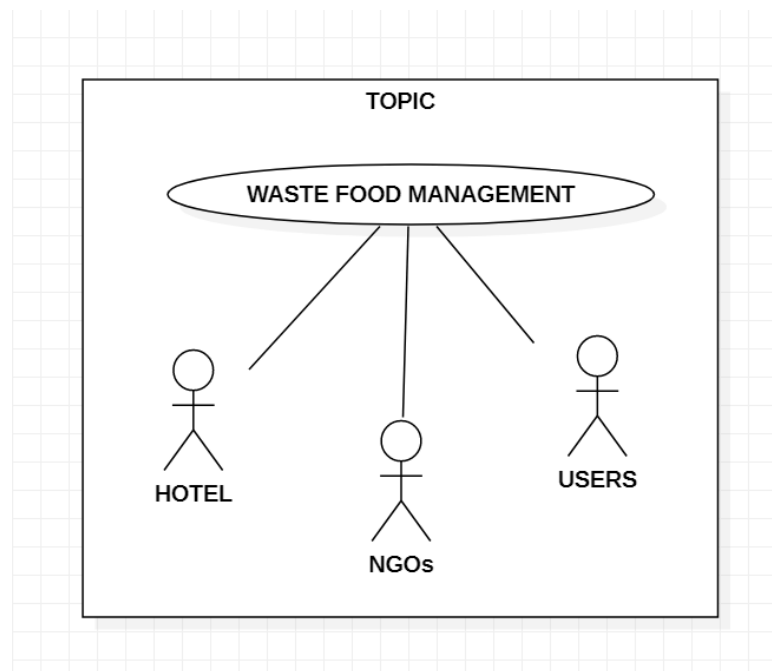


Figure 8. A proposed system of waste food management.

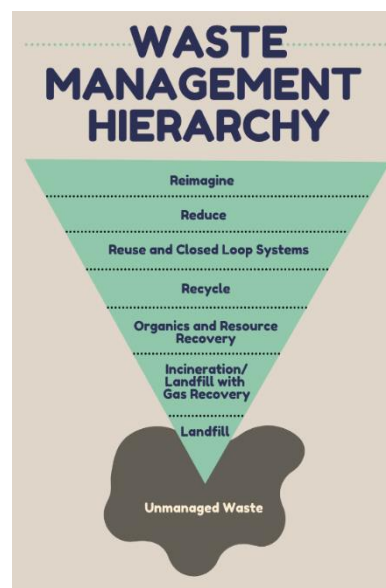


Figure 9. Food Recovery Hierarchy.

[4] [5] The food recall hierarchy prioritizes actions an organization can take to prevent and redirect food waste. Each level of the food use hierarchy focuses on different control Strategies for wasted food.

The highest level of the hierarchy is the best way to prevent and redirect food waste as it provides the greatest environmental, social and economic benefits. For more details on the hierarchy's tiers, click the links below [6,7].

The food donation application acts as a conduit for people looking for a way to give their extra food without throwing it away. By notifying nearby users of the details of available groceries, you can donate surplus groceries. Required users request notification. The system assigns groceries according to location and Social Worker available. Even the need for an agent is eliminated as there are no middlemen involved. All modules are independent of each other. There is also the possibility that food will not be wasted on a large scale and that people in need will be able to receive it.[8-10]

CONCLUSION

The food donation app serves as an interface for people looking for a way to donate extra food without wasting it. By informing neighbouring users of the specifics of the available food, it enables us to give the surplus food. The necessary users respond to the notification. Based on availability of social workers and location, the system distributes the food supplies.

It even eliminates the need for agents as there is no middleman involved all the modules are independent of each other. Also, there is a chance of food not getting wasted to a greater extent and the needy would be able to have food.

REFERENCES

1. Fowles, T. M., and C. Nansen. "Food Waste Management: Solving the Wicked Problem." (2020): 321-346.
2. Chowdhuri JP. Food Security and Food Wastage in India and Around the World. In Easy Chair preprint No. 2911 2020 Mar 9.
3. Charlton E. The coronavirus is creating food waste mountains that increase global warming [Internet]. World Economic Forum. 2020 [cited 2023 Jun 27]. Available from: <https://www.weforum.org/agenda/2020/06/covid-19-food-waste-mountains-environment/>
4. Smith A. The Perfect Storm. 2020 Jan 13 [cited 2023 Jun 27]; Available from: <https://www.routledgehandbooks.com/doi/10.4324/9780429462795-4>
5. Food Recovery Hierarchy | US EPA [Internet]. US EPA. 2015 [cited 2023 Jun 27]. Available from: <https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy>
6. food waste management wicked problems: pdf - Google Search [Internet]. Google.com. 2013 [cited 2023 Jun 27]. Available from: https://www.google.com/search?q=food+waste+management+wicked+problems+:+pdf&sxsrf=A_LiCzsZSZFvr_C9oC4efzmAkSn_NpLCIfw:1672918049188&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiLoL2wqbD8AhUctGMGHXxhD8kQ_AUoAXoECAEQAw&biw=1280&bih=573&dpr=1.5#imgsrc=7oLtDU6RyRKFDm
7. Paritosh K, Kushwaha SK, Yadav M, Pareek N, Chawade A, Vivekanand V. Food waste to energy: an overview of sustainable approaches for food waste management and nutrient recycling. BioMed research international. 2017 Jan 1;2017.
8. Saleemdeen R, Zu Ermgassen EK, Kim MH, Balmford A, Al-Tabbaa A. Environmental and health impacts of using food waste as animal feed: a comparative analysis of food waste management options. Journal of cleaner production. 2017 Jan 1;140:871-80.
9. Martin-Rios C, Demen-Meier C, Gössling S, Cornuz C. Food waste management innovations in the foodservice industry. Waste management. 2018 Sep 1;79:196-206.
10. Kibler KM, Reinhart D, Hawkins C, Motlagh AM, Wright J. Food waste and the food-energy-water nexus: A review of food waste management alternatives. Waste management. 2018 Apr 1;74:52-62.