



“Reducing food waste and improving management practices; a multi faceted approach for sustainable food system”

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Abstract: One third of the food produced 1.3 billion tons of food goes waste. In 2014 post-harvest losses in India were Reportedly around INR 9261st billion. Despite the fact that this understates. India’s annual food loss and waste, the country is ranked 94 th out of 107 on the Global Hunger, World Index, an 2020. Food waste is Intact energy Resources end up rotting away in landfills. Which emits greenhouse gases in the environment heating atmosphere thus leafing to climate change. Wastage of food in such a negligence massive scale results un the part of individual, society and nation: and from different sources, Food wastage also effect the environment and economic conditions of the country,

Keywords :- Food waste Management, Food wastage, Global food security, Environment, Economic conditions.

INTRODUCTION

As India's population continues to increase, managing food waste is becoming a critical problem. A figure that does not particularly illustrate our love of excess because it is a function of our population shows that India wastes more food than the entire United Kingdom. weddings, hotels, canteens, social settings, and family. The magnitude of the food is wasted in the gathering and housing processes. But there is food waste. India's management situation is still quite problematic. There is sufficient proof to demonstrate that our cities' streets, dumpsters, and landfills are bad for the environment. The size of the wedding, the size of the reception, and the quantity of waste produced all rise in India.

Even though awareness of the issue has increased dramatically over the past five years, food waste is unquestionably a huge issue at weddings and banquets. It is also a problem in hotels and restaurants. While some Indian restaurants employ food controllers to stop food from becoming bad. Other employers and smaller independent restaurants provide it to orphans in addition to some restaurants giving it to their personnel. Perishable food is rarely used. Biodegradable garbage called food waste (FW) is released from many different places, including homes, restaurants, and food processing plants. According to the FAO [1], around 1.3 billion tonnes of food are lost during the food supply chain, including fresh fruits, vegetables, meat, bakery goods, and dairy products. The number of FW will increase during the next 25 years due to population growth and economic growth, particularly in Asian countries, according to forecasts. According to reports, the amount of urban FW in Asian countries could rise from 278 to 416 million tonnes between 2005 and 2025 [2]. Over 1.4 billion hectares of fertile land—28% of the world's agricultural land—is used to produce food that is wasted or lost every year.

REVIEW OF LITERATURE

Reviewing food waste in dining facilities at educational institutions Some of these establishments include preschools, elementary, middle, and high schools, as well as colleges and universities. Additionally, he distinguished. Food loss and food waste are in between. In certain studies, the terms "food loss" and "good waste" have been used interchangeably. [Betz of al., 2015's]

They have been viewed as two separate concepts by several academies. Food that was initially wasted was referred to as food loss. The studies that were examined had a wide-ranging approach to studying food waste and concentrated on various aspects of it. Finding similar trends throughout studies on the value added chain and food waste was the goal. in the form of food lost at the very end of the food supply chain. .[Paritt et al, 2010]



Pre-consumer waste is the term for kitchen waste that accumulates during storage, preparation, and manufacture, whereas post-consumer waste refers to leftovers or plate waste. Academies have also used the terms "serving waste" and "display waste" to refer to waste generated at the moment of consumption! (particularly with relation to buffet meals.) [Abdeloal et al; 2019]

Examined were uneaten meals, which are primarily consumer waste. Earlier research examined food waste in preschools, elementary schools, and high institutions. [Smith and Cunningham-sabo, 2014; Adams et al., 2016; Zhao et al 2019]

The amount of waste produced varies by gender. The main cause of plate waste among boys is the love of self-Efficacy to finish one's food even if it doesn't taste good. [Abe and Akamatsu, 2015]

There conflicting are results about the link between waste generation and ageing. For instance, some researchers found that plate waste rose as students ages grew. [Steen et al., 2018.]

In order to reduce food waste, previous research have stressed the significance of interventions for altering consumer behaviour both before and after the consumption Prior researcher have covered thrice: general sort of intervention in this content: economic and financial incentives, education and communication. The most successful methods for behaviour modification have been recommended To be education and communication. [Whitechair et al. 2013, and Wilkie et al, 2015:]

The successful Implementation of Initiatives to minimise food waste and the overall efforts to attain such goals have been hampered by a number of problems, according to academies. According to several research there are some conflicting priorities and goals (such as customer happiness, food safety concerns and diet quality) that may limit attempts to decrease Waste. [Blondin et al. 2015, Prescott et al. 2019.]

Environmental effect of producing food that is not consumed are substantial Food waste dumped in landfills adds to global warming · One of the harmful greenhouse gases, methane is 21 times more potent than carbon dioxide. Trash from food waste dumps makes up 7%). of all greenhouse gas emissions globally of these foods were composted properly, less harmful Carbon dioxide rather than methane may be released into the atmosphere. In addition to food dumps another element has an impact on the environment is across larger the transportation of food across larger distances or its subsequent disposal. These operations demand a huge amount of fuel which the exhaust emission have an adverse long term impact on. [J. Golian K. Fasiangova, plytvanie Potraviny]

Social entrepreneurship and the influence of the food trade are related issue however, we also come across various social enterprises, such as resource saving alternatives on social entrepreneurship in agriculture. The Planet Perspective wins out in this situation. The concept of social entrepreneurship are also the foundation of the EU Sustainable Development strategy and the Europe 2020 strategy. [M. Nova]

Lack of effective contribution to household food security, Urban bias and pro rich to its Ineffectiveness in reaching the poor , PDS's not cost- efficient, very high storage losses and Very minimal per capita income transfer. [Singh (2011)]

In India proper nutrition is a big problem. The author claims that the right to food bill languishes in the house of parliament despite the fact that agriculture is the country's primary Industry. In fight, India the right to education is prioritised by effective Politicians, but for whatever reason, they still do not guarantee the right to food. The supreme Count's guidelines are now one of the key elements putting the right to food into practices. India's national food and programmes and other programmes to help the underprivileged such as Mid Day Meal scheme, Annapurna Yojana, National Family Benefit scheme .etc [George 2006]

OBJECTIVE OF THE STUDY

To know about food waste management

To prevent food wastage

Hunger should be reduced

Improvement in the life of the needy people



EFFECT ON WASTE WASTAGE

Biodiversity Loss: Farmers are encroaching more and more into natural areas in search of more productive land. In an endeavour to increase agricultural production, biodiversity has been lost. Practices like turning slash and burn, deforestation, and wild areas have destroyed the natural habitats for birds, fish, and amphibians. into agriculture.

Farming practises that promote monoculture have made the reduction of biodiversity worse. The mass breeding of cattle for human consumption and the use of pesticides in crop production are two factors that contribute significantly to the nitrogen, phosphorus, and chemical pollution of streams, rivers, and coastal waters. The aquatic life has suffered because of this pollution..

1/3 of the world's fertile land areas are wasted. By treating this issue from a well-considered analytical standpoint, it becomes clear that the quantity of land utilised to produce food that is not consumed accounts for around 14 billion hectares of the planet's total agricultural area. It is obvious that 30% of the world's arable land is wasted.

Spatter of blue water: Agriculture uses an astounding quantity of water to create food. The quantity of freshwater wasted during the production and processing of food is therefore larger than 30% if 30% of all produced is squandered. A year's worth of water is lost to a loss of about 250 Km³. owing to precise assessments of food waste.

Climate change and the expansion of carbon footprints. Climate change is accelerated by the amount of food that is produced and then wasted, which is equivalent to 3.3 billion tonnes of greenhouse gas emissions. Food waste is the third-largest source of greenhouse gas emissions, according to study.

Food waste has major financial costs in addition to negative environmental effects. The yearly economic losses brought on by food waste are estimated to be above 750 billion according to the FAQ report.

Statistics on waste generation and waste characterization data

Table 2.1 waste generation rate per kg

Population	waste generation rate (kg per capita per day)
cities with a population <0.1 million (eight cities)	0.17–0.54
cities with a population of 0.1–0.5 million (11 cities)	0.22–0.59
Cities with a population 1–2 million (16 cities)	0.19–0.53
Cities with a population >2 million (13 cities)	0.22–0.62

Estimating the volume and make-up of MSW in India as well as future waste creation is essential for efficient waste management planning. Seasonality, eating habits, economic activity, and living conditions all have an impact on the amount of MSW produced. The amount of MSW produced in India each day is projected to be 133 760 tonnes, of which 25 884 tonnes are treated and 91 152 tonnes are collected. The results show that India generates 0.17 kilogrammes of MSW per person per day in small towns and 0.62 kilogrammes per person per day in metropolises.

Predictions on future waste growth

Table 2.2 Predicted population growth and overall impact on waste generation.

year	population ($\times 10^6$)	per capita generation (kg per day)	total waste generation ($\times 10^3$ Tonnes per year)
2001	197.3	0.439	31.63
2011	260.1	0.498	47.30
2021	342.8	0.569	71.15
2031	451.8	0.649	107.01
2036	518.6	0.693	131.24
2041	595.4	0.741	160.96



Around 27 billion tonnes of waste are expected to be produced yearly around the world by 2050, with Asia accounting for a third of that amount and China and India producing the majority of that region's waste. India's urban areas would generate four to six times as much rubbish in 2025—0.7 kilogrammes per person per day—than they did in 1999. Greater trash-related problems result from larger communities, which creates opportunities for decentralised garbage management by NGOs and self-help groups. India's metropolitan areas today produce roughly 170,000 tonnes of rubbish per day, or 62 million tonnes yearly, as a result of population increase and changing lifestyles.

The table shows total trash generation in urban India increased from 31.6 million tonnes in 2001 to 47.3 million tonnes today. Waste production is expected to increase fivefold over the course of four decades, reaching 161 million tonnes by 2041.

CONCLUSION

It is clear throughout the whole food supply chain. From sproduction to consumption, why roughly one-third of all food produced for human use is wasted. While Numerous practical solutions have been proposed To reduce the food loss and waste, (such as bettering Storage facilities and launching awareness campaigns). These do not address the right issues of why loss and waste still occur to such a significant degree in the modern world. The global food system depends on producing and profiting from waste in this globalised, neoliberal political economy Whether it comes from Corporations encouraging unnecessary and unhealthy overconsumption through marketing Campaigns on government of the developed world encouraging overproduction of food commodities to use as a mechanism of control through food and Therefore, in order to truly end Food waste, people from all over the world must band together to reshape and rebuild local and global food system in a way that promotes find sovereignty, upholds the rights of all people to find in a sustainable and resilient manner, respects nature and nurtures human health and well-being.

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