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## ROLE OF YOUR PLATE IN CLIMATE CHANGE

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**Abstract:** With the growth of modern eating, people are likely to eat different food or try to cook a different dish. After eating the food, the leftover food is thrown away because it is over-served, not cooked properly. The plate here indicates that on the same plate we eat tasty food and at the same time we throw away that food that we have eaten a minute ago and we call it food waste. The current study focuses on the role of the plate in climate change. The study was conducted with the age group of 20 to 40 years in which 60 respondents participated in the questionnaire where 55% of female and 45% were male. The study was descriptive research with a survey method used to complete research and for collecting the sampling the researcher used the non-probability purposive sampling technique. In this study came to know that 35% of respondents throw leftover food, 31.7% feed the pet and 20% and 13.3% keep food for the next day and give to the poor 18.3% very often throw their food and 33.3% often throw food. In this 20% never felt anything while throwing the food. The main reason behind throwing food is 45% of respondents responded that food is cooked too much and 21.7% of respondents responded that they like to eat fresh food. The data collected through Google form due to pandemic.

**Index Terms** - Plate; waste food; climate change.

### I. INTRODUCTION

Does the small amount of food we throw affect our climate? Can we utilize the leftover food? How we can utilize the leftover food and save our climate?. In this study, we will understand the role our plate effect our climate change.

Why do we call food waste? It is the food we ate a minute ago. Food waste is that edible parts of food that are cooked for consumption of humans but it is not consumed because it is over-served, not cooked properly. <sup>1</sup>According to the Food and Agriculture Organization (FAO) of the united state: - food waste refers to food acceptable for human consumption however it is discarded [1]. Every year in India, sixty-seven million tons of plenty of food is wasted which has been estimated to be around Rs.92000crores [2]. More or less 84.7% of the overall food waste recorded is thrown in the bin within which quite half of the food edible to eat<sup>2</sup>. In today's era, massive food wastage is occurring. The food is stewed for the consumption of individuals however advisedly or accidentally it's wasted. <sup>3</sup>Food waste became an associate degree moral issue on a worldwide scale. Food is wasted in several ways- food is over-served, food isn't stewed properly, food is stewed an excessive amount of, no time to eat stewed food. For every problem, there is a solution [3]. Before throwing our food utilize the food like-

- The food that isn't touched offer to the poor
- Before having your food, taste the food and if the food isn't stewed properly cook it once more and eat rather than throwing
- In India, largely the food is served in tons before intake separates the food.
- If the food is still left on your plate feed the pet/ street dogs.

There is a multi-way to use stewed food rather than throwing. Saving the food or using the food wisely is an individual responsibility and there are lots of small things to save our food bring thrown in the bin and make a pretty big difference. Did you know the leftover food can make a huge difference? Keeping Food Out Of Landfill Not Only Save Limited Landfill Space, But Also Helps To Reduce Greenhouse Gases Emissions.

<sup>1</sup><https://hellosocialbook.family.blog/2021/04/28/food-waste-and-steps-to-prevent-food-waste>

<sup>2</sup><https://www.chintan-india.org/sites/default/files/2019-09/Food%20waste%20in%20India.pdf>

<sup>3</sup><https://hellosocialbook.family.blog/2021/04/28/food-waste-and-steps-to-prevent-food-waste/>

## 2. CLIMATE CHANGE AND FOOD WASTE

Climate change is that the average weather during a place over a few years. Climate takes a whole bunch, thousands of years to alter<sup>4,5</sup>. Global Climate change includes heating driven by human emission of greenhouse gases and so ends up in large-scale shifts within the weather pattern.<sup>6</sup> [10] Greenhouse gases includes CO<sub>2</sub> [carbon dioxide], CH<sub>4</sub> [methane], N<sub>2</sub>O [Nitrous oxide], O<sub>3</sub> [ozone].<sup>7</sup>[11] Food waste breaks down and emits greenhouse gases during the breakdown Methane [CH<sub>4</sub>] gas produces 25 times more potent than CO<sub>2</sub>.<sup>8</sup> Methane is a powerful greenhouse gas that traps heat 28 times a lot of effectively than carbon dioxide over a 100-year time continuance.<sup>9</sup> According to UNEP[ united nations environment program] said in India, the household food waste estimate is 50kg per capita per year or 68,760,163 tonnes a year. An executive director of the UNEP Inger Anderson said:-“if we wish to induce seriously regarding endeavor global climate change, nature and biodiversity loss and pollution and waste, business, government, and subject around the world have to do their part to reduce food waste”<sup>10 11</sup> [4] [12]

### 2.1 Some Facts

- <sup>12</sup>If food waste were its own country, it would be the world's third-largest emitter surpassed only by China and the United States. Food waste generates more than four times as much annual greenhouse gas emissions as aviation and is comparable to emissions from road transport<sup>13</sup> [5][13].
- One-quarter of all wasted food could feed the 795 million undernourished people<sup>14</sup> [6][14].
- Methane is a powerful greenhouse gas with a 100-year global warming potential of 28-34 times that of CO<sub>2</sub>. About 60% of global methane emissions are due to human activities<sup>15</sup> [7].

<sup>16</sup>According to Inger Anderson, executive director of UNEP-“ reducing food waste would cut GHG emissions, slow the destruction of nature through land conversion and pollution, enhance the availability of food and thus reduce hunger and save money at a time of global recession [8].

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all individuals enjoy peace and prosperity by 2030. Sustainable Development Goals: Goal 2 – zero hunger; Goal 12 - sustainable consumption and production – and Goal 13 – climate action [9].

### 3. OBJECTIVE OF THE STUDY

- To examine that how respondents use the food waste in the house.
- To identify that the respondent knows that leftover affects the climate.
- To understand the relationship between food waste and climate change.
- To find out the solution not to waste food and save the climate.

### 4. METHODOLOGY

The study was explanatory research with a survey method used to complete the research.

#### 4.1 Sampling Design

Population-To study the relationship between food waste and climate change the researcher collected the data from the Lucknow between the age of 20 to 40 years of males and females.

Sampling techniques-For collecting the sampling the researcher used the non-probability purposive sampling technique.

<sup>4</sup><https://answers.yahoo.com/question/index?qid=20130515165803AAP54iq>

<sup>5</sup> <https://eo.ucar.edu/kids/green/what1.htm>

<sup>6</sup>[https://en.wikipedia.org/wiki/Climate\\_change](https://en.wikipedia.org/wiki/Climate_change)

<sup>7</sup>[https://www.acs.org/content/acs/en/climatescience/greenhousegases/whichgases.html#:~:text=Greenhouse%20gases%20that%20occur%20both,and%20ozone%20\(O3\)](https://www.acs.org/content/acs/en/climatescience/greenhousegases/whichgases.html#:~:text=Greenhouse%20gases%20that%20occur%20both,and%20ozone%20(O3))

<sup>8</sup><https://watchmywaste.com.au/food-waste-greenhouse-gas-calculator>

<sup>9</sup>[https://climate.nasa.gov/climate\\_resources/225/video-methane-sources](https://climate.nasa.gov/climate_resources/225/video-methane-sources)

<sup>10</sup><https://economictimes.indiatimes.com/news/economy/indicators/estimated-931-mn-tonnes-of-food-wasted-globally-in-2019-indias-share-68-mn-un-report/articleshow/81345719.cm>

<sup>11</sup> <https://www.unep.org/news-and-stories/press-release/un-17-all-food-available-consumer-levels-wasted>

<sup>12</sup> <https://biobrief.org/countries-climate-plans-are-missing-a-big-opportunity-food-waste/>

<sup>13</sup><https://www.wri.org/insights/whats-food-loss-and-waste-got-do-climate-change-lot-actually>

<sup>14</sup>[https://foodtank.com.cdn.ampproject.org/v/s/foodtank.com/news/2015/06/world-environment-day-10-facts-about-food-waste-frombcfn/amp/?amp\\_js\\_v=a6&\\_gsa=1&usqp=mq331AQHKAFQArABIA%3D%3D#aoh=16187620043243&csi=1&referrer=https%3A%2F%2Fwww.google.com&\\_tf=From%20%251%24s&ampshare=https%3A%2F%2Ffoodtank.com%2Fnews%2F2015%2F06%2Fworld-environment-day-10-facts-about-food-waste-from-bcfn%2F](https://foodtank.com.cdn.ampproject.org/v/s/foodtank.com/news/2015/06/world-environment-day-10-facts-about-food-waste-frombcfn/amp/?amp_js_v=a6&_gsa=1&usqp=mq331AQHKAFQArABIA%3D%3D#aoh=16187620043243&csi=1&referrer=https%3A%2F%2Fwww.google.com&_tf=From%20%251%24s&ampshare=https%3A%2F%2Ffoodtank.com%2Fnews%2F2015%2F06%2Fworld-environment-day-10-facts-about-food-waste-from-bcfn%2F)

<sup>15</sup> <https://unece.org/challenge>

<sup>16</sup><https://www.theguardian.com/environment/2021/mar/04/people-wasting-almost-billion-tonnes-food-year-un-report>

**Sample Size-**The sample size was 60 respondents

#### 4.2 Tools used for data collection

The study was conducted by questionnaire through the Google form because of the current situation i.e. pandemic. An online questionnaire (Google form) was prepared and circulated in public through emails and social media platforms (WhatsApp and Facebook) to seek responses from the participants.

### 5. RATIONALE OF THE STUDY

The current study would be focusing on finding out the relationship between food waste and climate change. Here in the study, food waste is that which people waste food after eating because it is overcooked, served over, not cooked properly.

### 6. RESULTS AND DISCUSSION

#### 6.1 Result

In this study came to know that only 18.4% of respondents knew that food waste affects climate change. 81.6% still not aware of the food waste effect on climate change.

### 7. DISCUSSIONS

In this study, there were 60 respondents participated, two weeks the google form was open in which 60 respondent filled the questionnaire i.e between the age of 20-40 years of female and male have participated 55.0% of respondents eat 3 times a day. 23.3% of respondents eat 2 times a day, 13.3% of respondents eat their food 4 times a day and 8.3% of respondents eat their food 1 time a day.

45% of respondents purchase food items from local corners shop and 31.7% of respondents responded that they buy from the supermarket. the local corner shop is preferred more because they get fresh vegetables at a reasonable price.

31.7% of the respondent buy food items twice a week and 28.3% of respondents buy the food item once a week while buying the food item they buy in bulk.

There were 35% of respondents responded that they throw the leftover food. 31.7% feed the pet. 20.0% and 13.3% kept for the next day and give it to the poor respectively.

20% of the respondent doesn't feel anything while throwing the food while other respondent feels angry 11.7%, ashamed 25%, and guilty 43.3%.

The reason behind the food is left or wasted in household according to the study 45% respondent responded that it is cooked too much. 21.7% respondent that they like to eat fresh food. 20% of the respondents that food is left too long and 13.3% not time to eat food.

The only 18.4% knew that food waste affects climate change.

30.0% of respondents knew that when food is thrown the gas is released is methane and 26.7% responded that carbon dioxide, 23.3%, and 20.0% responded that gas release from food waste is nitrogen and hydrogen respectively.

After knowing that food waste effect climate change 60 respondents responded that they will take few steps like 31.7% will shop smartly, 28.3% will donate untouched food to the poor, 23.3% will take a small amount of food to eat, 16.7% will give to the animals.

	MEAN	S.D
How many times do you eat your food?	2.2666	0.7930
How do you purchase everyday food items?	2.4333	1.0949
How often do you shop for food items?	2.4333	1.0311
What do you do with leftover food?	2.1833	1.1273
How often do you throw away the leftover?	2.55	1.0644
How do you feel when food is thrown?	2.7166	0.9222
What do you think are the main reasons that food gets wasted in your household?	2.5	0.9829
Is there any relationship between leftover food and climate change?	2.6333	0.8823
Do you know the food we waste affect our climate change?	2.7166	1.009
Do you know when food waste is thrown in the garbage which gas is released more?	2.3666	1.0887
Which step you will prefer to avoid leftover food?	2.5	1.1424

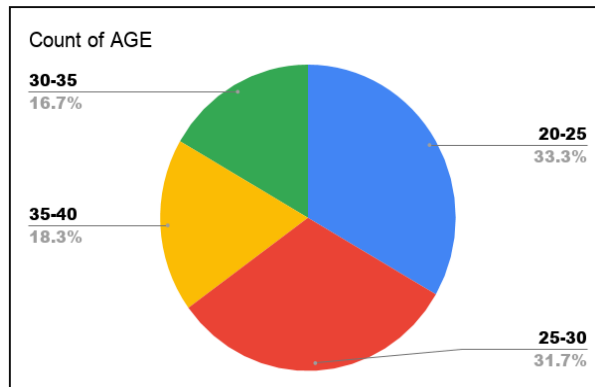


Fig. 1. Age count

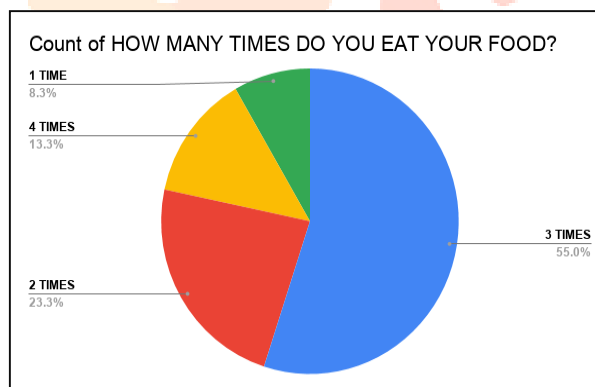


Fig. 2. In a day eating habit

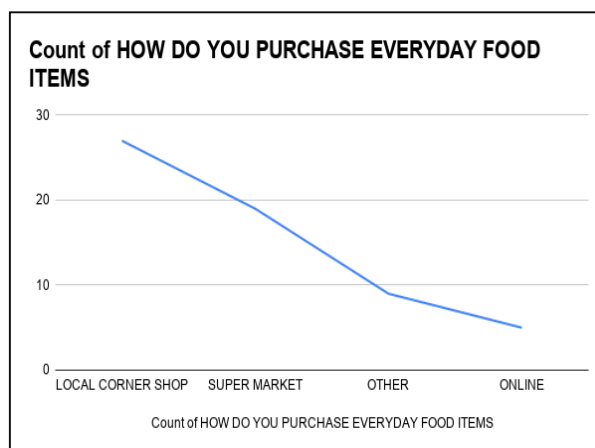
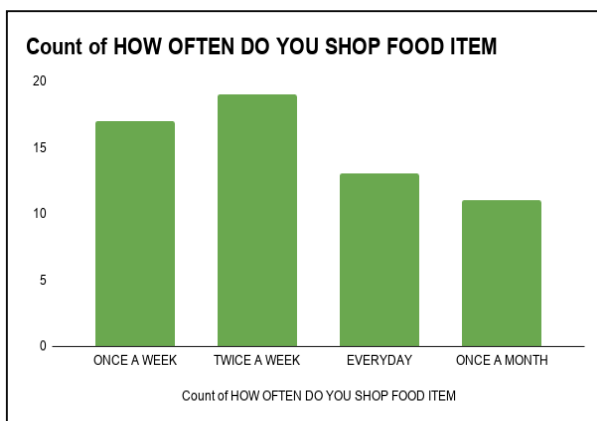
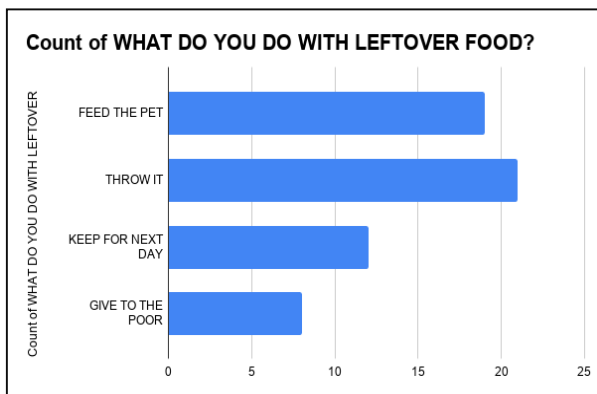


Fig. 3. E-food item purchase ratio

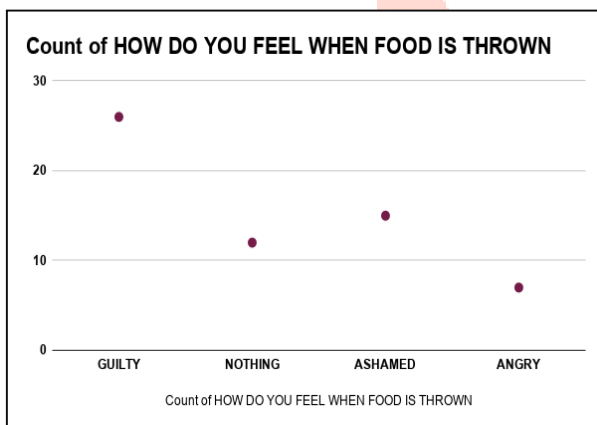
\*other means here the vegetable comes home



**Fig. 4. Shop food item purchase ratio**



**Fig. 5. Leftover food percentage**



**Fig. 6. Feeling during throwing food**



**Fig. 7. Food wasted in the household**

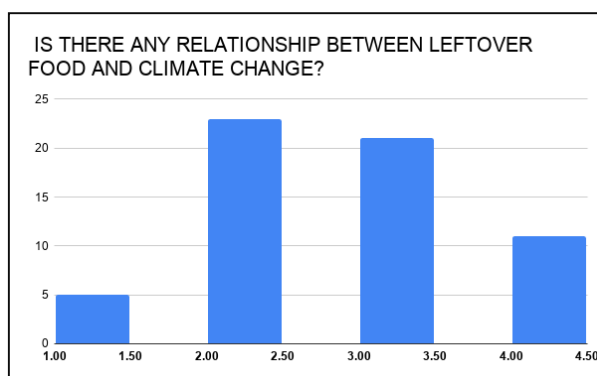


Fig. 8. Relation between leftover food and climate change

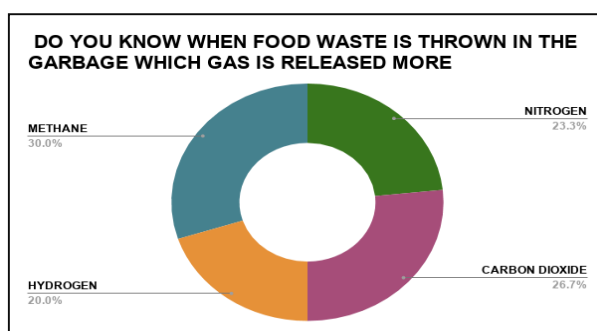


Fig . 9. Gases released during food waste

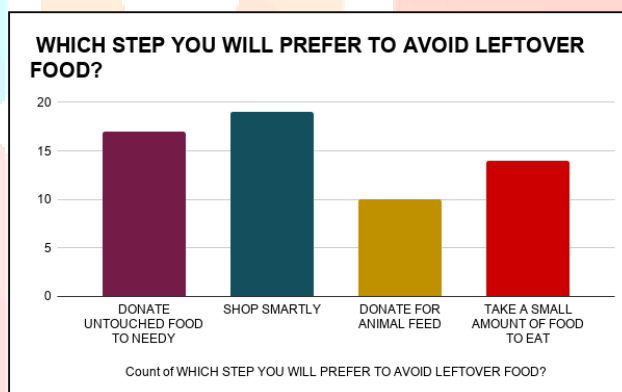


Fig . 10. Steps you will prefer to avoid food waste

## 7.1 Steps to Prevent Food Waste and Save the Climate

- Awareness about food effect on climate change
- Shop smartly: before buying the food items list down the food needed in the house
- Before having your meal taste the food and if it is not cooked properly, cook again
- Before serving the food ask the person how much is needed or self serve the food
- If you don't eat everything you make, freeze it and later use the leftover as an ingredient in another meal
- If food is left and is untouched give it to the needy person in your local area
- If food is used then give it to the pet or street animals
- Store food wisely- move the older products to the front of your cupboard or fried and new once at back.
- Think twice before throwing food away.
- Reduce- waste not, want not! Reuse-leftover, Recycle- everything old is new again.

## 7.2 Implications of the Study

- This study can be used by different researchers for further research
- This study is a useful contribution to understand the importance of climate change
- This study will be helpful to use food sustainably.
- This study is useful to know the relationship between food waste and climate change.
- This study will be helpful to know the alternative ways to use leftover food in the house



### 7.3 A suggestion of the Study

- The study has been done by taking only a sample of 60 respondents therefore it is suggested to take a bigger size for obtaining more accurate results.
- The study has been done in the Lucknow region only so it is important to take a larger area or another region so that more appropriate results can be obtained.
- The study is filled in Google form due to pandemic. it is suggested that the researcher have one-to-one contact for more accurate data.

## 8. CONCLUSION

The leftover foods play an important role in climate change. The food goes to the landfill and breakdown and emits greenhouse gases. During the breakdown, gases are produced are carbon dioxide, methane, nitrous oxide. Methane gases are more produced from other gases. the boiling point of methane is -162 degrees Celsius and the melting point -182.5 degrees Celsius. Methane not only cause climate change but it also affects serious damage to human health. In this study, 11% of respondents knew that food waste affects the climate. The main reason for food waste is cooked too much like to eat fresh food, food is left too long and not time to eat food. Before having and after having your food take proper steps in which it will lead to less food waste by this we can save our food, climate as well as human health.

***Reduce- waste not, want not! Reuse-leftover, Recycle- everything old is new again***

Everyone should keep in mind

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