



ZERO FOOD WASTE: MEASURES TO COMBAT FOOD HUNGER

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Abstract:

The need to address food hunger through zero food waste has never been greater & is moving up national agenda around the world. Food wastage in all steps of the food production-to-plate cycle attributes significantly to the total loss of food quantity & quality. The loss is immense at household, social and global level. Reducing food losses by just 15 percent would be enough to save food to feed more than 25 million people at a time when one in six people lack a secure supply of food to their tables. Increasing the efficiency of our food system is a triple-bottom-line solution that requires collaborative efforts by businesses, governments, and consumers. The amount of food wasted and thrown can suffice in combating many hungers of the world. Feeding the increasing number of mouths can be well achieved if food wastage can be controlled.

Keywords: *food wastage, zero hunger, food waste management*

Introduction:

Food waste is a global problem that touches everyone. The United States wastes up to 40% of its food from farm to fork to landfill. That's an enormous amount of resources wasting away in landfills - costing consumers, businesses, and the environment. If trees were planted on the land that's used for wasted food, 50-100% of human-made greenhouse gas emissions could be offset! ([http://www.ncrarecycles.org/ZeroFoodWaste Forum](http://www.ncrarecycles.org/ZeroFoodWasteForum)).

What is Food Waste?

Food waste_or_food loss_is_food_that is discarded or cannot be used. The causes of food waste or loss are numerous, and occur at the stages of production, processing, retailing and consumption (http://en.wikipedia.org/wiki/food_waste).





Food wastage cripples a country's economy to an extent that most of the populations are unaware. In India where it is considered as a developing nation for the last 60 years, food wastage cripples a lot more. About 20% of what is bought in urban India ends up being thrown away. According to UNDP (United Nations Development Program), about 40% of food is wasted in India (<http://www.sustainabletable.org/472/intro-to-food-waste>). Enormous quantities of food are thrown away every day. According to the Food and Agriculture Organization of the United Nations (FAO), about one third of global food production (around 30 to 40%), is lost or wasted annually (<http://www.unric.org/en/food-waste/27133-one-third-of-all-food-wasted>).

While India and other developing nations struggle to feed all the population, its an irony that this much of food is wasted and not a lot of people know about this (<http://www.sustainabletable.org/472/intro-to-food-waste>). Loss and wastage occurs at all stages of the food supply chain or value chain (http://en.wikipedia.org/wiki/Food_waste).

Food Waste at Individual Level:

All people have been told, since childhood, that wasting food is bad-- but it still happens. People buy food but don't have time to cook. The leftovers in the back of the fridge are always forgotten about. Food that's stamped with yesterday's date is thrown out, assuming it must be dangerous to eat. Food can spoil before it is used if not stored properly, it can get lost behind other items in the fridge, or it gets tossed because people misjudge their food needs. Sometimes the quantity of the cooked food is just too much. Cooking portions have increased over time and large meals can lead to uneaten leftovers (http://switchboard.nrdc.org/blogs/plehner/tackling_food_waste_at_home.html).

The need to consider food wastage for estimating food consumption was identified as early as 1939. Since then, there have been many attempts to estimate household food wastage. However, due to its complexity, it has been very difficult to obtain acceptable estimates (http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/working_paper_series/WP001e.pdf).





Food Waste at Community & Social Level:

The social community stages festivals or gala like birthdays, marriages, official meetings, get-togethers & alike. No celebration is fulfilled without eating. But no celebration eating ends without wasting. People at celebrations pick up on their plates more food than they can consume and the leftover wastage finds its way into garbage bins (<http://www.dawn.com/news/746508/food-wastage-at-weddings>). This is the case with most of the guests. After the big fat wedding, what remains is the litter, dirty dishes and piles of excess high-calorie food. An article states, "About 943 tonnes of high-calorie quality food is wasted in the function halls annually. At an average cost of Rs 40 per meal, the total food wastage in the city is estimated at Rs 339 crore" (<http://timesofindia.indiatimes.com/city/bengaluru/Wedding-food-worth-Rs-339-crore-goes-waste/articleshow/16774949.cms>).

Food Waste at Global Level:

The world on its globalization is improving at its pace. But there is another negative side which is yet to taken care of. Discarded food is one of society's most pervasive problems, and was recently reported to be the leading cause of "green guilt." While consumers may feel guilty, a lot of that food gets wasted long before it makes it to their plates (<http://www.sustainabletable.org/472/intro-to-food-waste>). In developing countries the problem is essentially due to inadequate harvest techniques, poor post-harvest management, lack of suitable infrastructure, processing and packaging, lack of marketing information (<http://www.unric.org/en/food-waste/27133-one-third-of-all-food-wasted>). According to an article, "India, the world's second largest producer of fruits and vegetables, is throwing away fresh produce worth Rs 13,300 crore every year because of the country's lack of adequate cold storage facilities and refrigerated transport, according to data compiled in a new report by Emerson Climate Technologies India, a business of the US-based manufacturing and technology company Emerson" (http://articles.economictimes.indiatimes.com/2013-11-28/news/44547246_1_cold-storage-facilities-wastage-cold-chain-infras).





Impact of Food Wastage:

Food waste or losses have an impact on climate change. Resources (water, fertilizers, pesticides, seeds, energy, and labour) are used to produce this food that accounts for money and manpower. It has an impact on the production of greenhouse gas emissions and consequently on climate change. In developing countries, food losses during harvest and storage reduce the income of small farmers and result in a higher price for poor consumers who can't afford to pay for the food. Reducing food losses can therefore have an impact on improving the livelihoods and food security of small farmers and poor consumers (<http://www.unric.org/en/food-waste/27133-one-third-of-all-food-wasted>).

Solutions of Food Wastage at Individual Level:

Following are the ways one can adopt at household level to reduce food wastage-----

Food Wastage	Measures to Minimise Food Wastage
Throwing away food, this could have been eaten by oneself or by others.	Lot can be saved, if a person learns to cook leftovers.
Buying more than what actually is needed.	Person must plan food shopping and bring a grocery list to the shop; Should be cautious of quantity discounts, like "buy 3 pay for 2" offers, that make people buy more than they actually needed.
Rejecting a piece of fruit, because it is slightly wrinkly, bumped or has a spot.	Person can cut off the spot. The rest of the fruit can be used in fruit salads or smoothies.
Throwing away food because it has been too long on the dining table.	Person can put out as much food, as it is needed. Refrigerate or freeze the leftovers as quickly as possible.
Pushing the older food to the back of the fridge or cupboard, and placing fresher food in front.	One should check the content of the fridge and cupboards, before shopping; Should not buy new before using what you already have.
Throwing out the last bit of food along with the food packaging.	Up to 25% of food is unnecessarily wasted due to the food packaging. Person should use all of the content before buying new. One can place the ketchup bottle on the cap, so the last drops are easy to get out. One can cut plastic bottles and tubes open to remove the last bit of content.
Merely using the amount stated in the recipe and then throwing away what's left of the food.	One should plan the meals including using leftover raw materials and cooked food.
Discarding meat, vegetables, and	The pulp can be blended to make a sauce,





stems used to make a soup or a broth.	and bits of meat can be diced and add texture to the soup.
Discarding the foods by reading the “use-by” & “best-before”.	One should understand that for many products, the "use by" and "best before" dates are simply manufacturer recommendations for peak quality, and are not an indicator of food safety. Very often foods--particularly dry goods--are fine long after the date on the package. Trust the nose and common sense.

Solutions of Food Wastage at Community Level:

Following are the ways people can follow at mass level to reduce food wastage-----

Food Wastage	Measures to Minimise Food Wastage
Throwing bulk foods produced but not stored properly.	Freeze, preserve, or can surplus fruits and vegetables - especially abundant seasonal produce.
Order as per mood or take the amount that can be easily consumed.	One should order as per hunger. At restaurants, only that amount should be ordered what can be finished by asking about portion size. One should be aware of side dishes included with ordered menus & can take home the leftovers and keep them for the next meal. At marriage parties or get together events, one should choice the food as per the appetite & choice so that the required amount is peacefully eaten & not wasted (plate waste).
Discarding food scarps.	Compost food scraps rather than throwing them away.
Throwing left over and uneaten foods.	Nutritious, safe, and untouched food can be donated to food banks to help those who are in great need.

Solutions of Food Wastage at Global Level:

Following are the ways people around the world can follow at global level to reduce food wastage-----

Food Wastage	Measures to Minimise Food Wastage
Unavailability of all foods all round the year.	Enabling all people to access the food they need at all times through nutrition-sensitive agriculture and food systems.
Unsustainability of farmers and agri-sector.	Ensuring that all farmers, agribusinesses, cooperatives, governments, unions and civil society establish standards for sustainability.





Rural poverty and down trodden livelihood.	Reducing rural poverty and improving wellbeing through encouraging decent work, and increasing smallholder's income.
Loss of edible substance from food producer to food consumer.	Minimizing food losses during storage and transport, and waste of food by retailers and consumers; empowering consumer choice through appropriate labeling; commitments by producers, retailers and consumers within all nations; achieving progress through financial incentives, collective pledges, locally-relevant technologies and changed behavior.
Dumping food leftover in landfills.	Dumping food waste in a landfill causes odour as it decomposes, attracts flies and vermin, and has the potential to add biological oxygen demand (BOD) to the leachate. The European Union Landfill Directive & Waste Regulations, like regulations in other countries, enjoin diverting organic wastes away from landfill disposal for these reasons.
Food waste is combined with general waste at the source.	Instead of that, foods can be eliminated separately. Separate collections, also known as source-separated organics, have the advantage that food wastes can be disposed of in ways not applicable to other wastes. From the end of the 19 th century through the middle of the 20 th century, many municipalities collected food waste (called "garbage" as opposed to "trash") separately. This was typically disinfected by steaming and fed to pigs, either on private farms or in municipal piggeries.
Discarding food scraps.	The feeding of food scraps to animals is, historically, the most common way of dealing with household food waste.
Dumping food wastes improperly.	Anaerobic digestion is another process to manage food wastes. Anaerobic digestion produces both useful gaseous products and a solid fibrous "compostable" material. Anaerobic digestion plants can provide energy from waste by burning the methane created from food and other organic wastes to generate electricity, defraying the plants' costs and reducing greenhouse gas emissions.
Throwing food wastes in public places.	In regions where people practice dumpster diving, food waste is also reduced.





The 2011 SIK (The Swedish Institute for Food and Biotechnology) study by Gustavsson et al. (2013) estimated the total of global food loss and waste to around one third of the edible parts of food produced for human consumption, amounting to about 1.3 billion tons per year (http://en.wikipedia.org/wiki/Food_waste). This massive loss if taken care of, can help to eradicate a major social problem of hunger. India is the second most populous country in the world with an estimated 1.2 billion people. Despite economic growth and self-sufficiency in food grains production, high levels of poverty, food insecurity and malnutrition persist in India. India ranks 94th out of 119 countries in the Global Hunger Index (<https://www.wfp.org/countries/wfp-innovating-with-india/overview>).

What is Food Hunger?

As per the dictionary meaning of food hunger, it says, hunger means a very great need for food. It is an uncomfortable feeling in the stomach that is caused due to either severe lack of food or by the need for food (<http://www.merriam-webster.com/dictionary/hunger>).

The world produces enough to feed the entire global population of 7 billion people. And yet, one person in eight on the planet goes to bed hungry each night. In some countries, one child in three is underweight. Why does hunger exist? (<http://www.wfp.org/hunger/causes>).

The answer to this question enlists a number of causes. It includes poverty trap, lack of investment in agriculture, climate and weather, war and displacement, unstable markets & food wastage (<http://www.wfp.org/hunger/causes>). But the most heart wrenching cause is the food wastage.

One third of all food produced (1.3 billion tons) is never consumed. This food wastage represents a missed opportunity to improve global food security in a world where one in 8 is hungry (<http://www.wfp.org/hunger/causes>). *The State of Food Insecurity in the World 2014* presents updated estimates of undernourishment and progress towards the Millennium Development Goal (MDG) and World Food Summit (WFS) hunger targets. A stock-taking of where the people stand on reducing hunger and malnutrition shows that progress in hunger reduction at the





global level and in many countries has continued but that substantial additional effort is needed in others (<http://www.fao.org/publications/sofi/2014/en/>).

Zero Food Waste can lead Zero Food Hunger:

"There are people in the world so hungry, that God cannot appear to them except in the form of bread."-Mahatma Gandhi. There is sufficient capacity in the world to produce enough food to feed everyone adequately; nevertheless, in spite of progress made over the last two decades, 805 million people still suffer from chronic hunger (<http://www.fao.org/about/what-we-do/so1/en/>). This condition can be improved by several simple measures. This requires comprehensive efforts to ensure that every man, woman and child enjoy their **Right to Adequate Food** (<http://www.un.org/en/zerohunger/challenge.shtml>). October 16th is World Food Day. It's a time to recognize the unacceptable hunger that still exists around the world despite the large amount of good food that goes to waste. With all the food that goes to waste, it could be fed to the hungers, over many times. What's more is that 1 in 6 adults and 1 in 4 children are food deprived at some point during the year. That amounts to 50 million people impacted right in people's respective backyards (<http://www.ncrarecycles.org/ZeroFoodWasteForum>).

Food is the fuel of life. Every human, animal & plant needs food to live, grow and reproduce (<http://www.fao.org/docrep/018/i3466e/i3466e.pdf>). Thus, gradually taking micro steps of zero food wastage will contribute towards achieving the macro goal of eliminating food hunger.

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