

Innovative Practices to overcome Food Waste Management in our Society.

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I. INTRODUCTION:

Food wastage is a growing global crisis that is affecting the physical health of the earth and the population inhabiting the entire planet. Recent estimates postulate that food wasted in developed countries; like Europe and the United States can feed the whole continent in more than three times. Two out of 8 children in the United States live in homes that cannot access enough food. Food wastage is a serious environmental concern facing the whole continent. To determine the way out of this disaster is not easy. There is a need for sacrifice and co-operation from various agencies to address this issue. This paper focuses on food wastage by discussing how food is wasted and how it can be avoided. The article "Food Waste not, Want not" is not an easy is also used in the discussion.

The article "Food: Waste not, Want not" discusses the global problem of food wastes. The figures pertaining to food waste all over the world amount to about 1.3 billion tons per year. This is an alarming figure which denotes how much food is wasted despite wide spread food shortage. All countries have the almost equal share on this food waste. They only differ on the source of food waste. Rich countries throw away food either because of rejection or because of household wastes. On the other hand, developing countries lose their food because they do not have the equipment and resources for improving their crops and preserving its freshness. Also, climate change is taking its toll on the food products.

Food waste is defined as the food loss during retail and final consumption. Food wastes only refer to foods for human consumption. It also includes food for human consumption, which went out of the human food chain (Meybeck et al., 2011). These are the foods thrown away even if they are still fit for human consumption. Statistics show that one third of the total food produced is being wasted from the production up to consumption. Studies show that there is remarkable vegetable and fruit losses in industrialized countries due to standards set by retailers. Severe losses were observed during post harvest and distribution of products on developing countries (Meybeck et al.,

2011). What is worse is the fact that people throw food away even if it remains unopened. Also, consumers tend to prepare more than they can consume and this contributes to more food wastes. Wasted food equated wasted money. Much money is spent on food not eaten. Everyone is guilty of wasting food without knowing the effects and consequences of it. Studies showed that older people waste more food than children (Ventour, 2008).

FOOD WASTE

An estimated one third of all food produced globally is either lost or wasted. In an age where almost one billion people go hungry, this is unacceptable. Food loss and waste (FLW) represent a misuse of the labour, water, energy, land and other natural resources that went into producing it. Food embodies much more than what is on our plates. It is, therefore, important that we recognize, appreciate and respect the value of food.

Food loss refers to any food that is lost in the supply chain between the producer and the market. This may be the result of pre-harvest problems, such as pest infestations, or problems in harvesting, handling, storage, packing or transportation. Some of the underlying causes of food loss include the inadequacy of infrastructure, markets, price mechanisms or even the lack of legal frameworks. Tomatoes crushed during transport because of improper packaging is one example of food loss.

Food waste, on the other hand, refers to the discarding or alternative (non-food) use of food that is safe and nutritious for human consumption. Food is wasted in many ways:

- Fresh produce that deviates from what is considered optimal in terms of shape, size and color, for example is often removed from the supply chain during sorting operations.
- Foods that are close to, at or beyond the "best-before" date are often discarded by retailers and consumers.
- Large quantities of wholesome edible food are often unused or left over and discarded from household kitchens and eating establishments.



HOW DO WE WASTE FOOD?

About 21 million tonnes of grain is wasted only because we do not have adequate storage facilities to keep it. A major chunk (40 percent) of the total fruit and vegetable produced in the country does not get to the Mandi on time due to lack of proper means of transportation.

According to a report by the Indian Institute of Public Administration, in India every year 23 million tonnes of pulses, 12 million tonnes of fruits and 21 million tonnes of vegetables get spoiled due to flaws in the distribution system.

Have you ever noticed how much food do you waste on day-to-day basis? We tend to forget how valuable food is. Often we forget after keeping fruits and vegetables in the fridge, after several days when we chance to look at it, we have no option but to throw it. Sometimes we prepare more than enough food; a major part of it is thrown away unnecessarily.

WHY DO WE WASTE FOOD?

It has been reported that with increasing prosperity in India, people are becoming insensitive towards food. With the growing ability to spend, the tendency of throwing food is also increasing among people. Tonnes of food is wasted daily in events such as marriages, parties and other functions. Here are some of the reasons:

- **Undesirable Urban Tendencies**

In Indian culture, it is considered a bad habit to leave unfinished food in the plate. Generally, we try in our homes that the waste of food in the form of leftover should be minimized, but surprisingly when we are attending some marriage or party, we forget all this. The waste of food in city parties has become a common occurrence. It has increased even more after the start of the buffet system. Due to the present period of competition and ostentation, the number of recipes served in the banquet has increased with the guests filling their plates with the stuff, which is too much for them to consume.

- **Too much variety, little affection**

Today, many middle class families exceed their budget in making wasteful expenditure on food. The waste of food in weddings, festivals or functions has become commonplace.

In the past, food was served with great affection by family or friends in different ceremonies. Guests used to sit and eat with their family, and were hesitant to leave any unfinished food. Nowadays, there are umpteen numbers of dishes, chaat-pakodi and different types of ice cream placed on the stalls; people come and make a queue as per their liking. Offering too much variety of items aggravates food waste.

There are generally, two types of waste, one by the people leaving unconsumed food in the plate, and turning up of less than expected guests. Although, some of the foods that stay fresh can be distributed or sold in the market; but nothing can be done about the leftover stale food.

Due to the tendency to indulge in display, the trend of expensive marriage has become a rage. Now designer weddings are in vogue, in which from women's music to wedding rites, everything is decided by professional wedding planners. Now, with waiters in attendance, the atmosphere has started to be somewhat like a restaurant or a carnival but it lacks intimacy and warmth, with guests least bothered about finishing their food.

What happens to your food waste?

The odour and rot, that arises from the food thrown around the houses cause trouble to those who live there. Many times animal deaths are reported due to the rotting food.

According to traders associated with tents and catering businesses, there are about 300-400 marriages in cities in 30-40 auspicious days throughout the year. About 20 to 25 per cent of food is wasted in weddings. The ordering party has to decide what to do with food. In such cases, vegetables are thrown away, while the soon-to-decay food is distributed elsewhere.

EFFECTS OF FOOD WASTE

At first instance, throwing of food may appear trivial, something associated with a big event, but it is a serious worldwide problem. In this context, a report by the World Food and Agriculture Organization takes a comprehensive look at the wastage of food grain. Entitled 'Food Wastage Footprint: Impacts on Natural Resources', this report says that food security is not possible without preventing food wastage. Studying global food waste from an environmental perspective, this report says that the wastage of food leads to a very negative impact on water, land and climate as well as biodiversity.

According to the report, the food that is not eaten results in waste of water equivalent to the water of Russia's Volga River. More than three billion tonnes of dangerous greenhouse gases emit due to this food that goes wasted. The produce of about 28 percent of the world's land, which has a population of 1.4 billion hectares, simply goes down the drain. Sounding a warning bell, the report says that due to our negligence and inappropriate activities, one-third of the grains produced, i.e. about 1.3 billion tonnes, goes waste, while 87 million people worldwide are constrained to starve. The loss of food wastage is all-pervasive and this causes global economy a loss of more than \$750 billion, which is equivalent to Switzerland's GDP.

WAYS TO REDUCE FOOD WASTE

Following are some ways through which we can contribute stopping food waste that has become a formidable challenge:

- **Strengthening Storage and Distribution**

Food grains to the tune of 25.1 crore tonnes are produced in the country every year, but every fourth Indian remains hungry. On an average, every Indian wastes six to eleven kg of food in a year. The amount of food we waste in a year is equivalent to the cost of several hundred cold storages which can save fruit and vegetables from the decay. Five thousand warehouses can be made in rural areas if we can save paddy and wheat procured by the government that is destroyed lying uncared for in the open. At the Panchayat level, if there is adherence to the contingency storage and distribution of one quintal grain to the needy then at least no one will die of hunger.

- **Proactive Policies**

Due to increase in the prices of raw material, the cost of food has increased. According to middle class yardsticks, the estimated cost per person or per plate has now increased to Rs 300 to 400. Due to food waste, loss of Rs 1.5 lakh to 2.00 lakh takes place per wedding. It implies that 300 to 400 people can be fed good food, if we can stop this waste.

The Indian government is very much concerned about the waste of food in weddings. In 2011, the Food Ministry said that it was considering limiting the number of dishes served in the weddings as well as the number of guests. In this context, Displays and Wasteful Expenses (Repeal) Act, 2006 has also been enacted. However, there is need to enforce this law strictly.

- **Be a Smart Homemaker**

Plan ahead for the entire week's ration and make purchases accordingly. Do not buy anything more than you need. Make a list of your menu, otherwise the possibility of food getting wasted increases. Before making the food i.e., before lunch

and dinner, think about what dish to make and how much. Try to make only that much food as can be consumed in one day. You might buy paneer and not use it for that week, then it will naturally get spoiled and you will have to throw it. It is better that you buy only the quantity that is sufficient for a few days. Check the fridge at the time of going to the market to find out what items are there in the house and what need to be bought.

Learn how to keep dry food properly. Always keep items such as flour, lentils and rice in the air tight compartment so that none of it goes waste. Sometimes due to negligence, such items get spoiled and you unconsciously become guilty of food waste.

- **Do not Overshop**

You tend to think that by buying all the ingredients at once, you will be able to prepare anything whenever you want, that means you will get rid of the hassle of buying commodities every day. But this way, you buy a lot of unnecessary things, which increases the possibility of food waste. That's why you should always buy goods in small quantities. There is no point in putting a stack of items in the fridge and cupboard.

Prepare the list of goods before going for grocery shopping. This will help you know what to buy and what not to buy at the time of purchase. By not doing this, you may often forget the stuff for which you have gone and they pick up which you do not even need at the moment.

Take advantage of the delivery service of the shopping store. You may feel lazy to go shopping every second-fourth day, so, you like to get one week's ration and other goods together in one round. But instead of doing so, if you get daily supplies from the store's delivery service, you will save money and there will be no waste of food at the end of the week.

- **Use the Refrigerator Smartly**

Many times we forget to keep things in the fridge because we do not see them in front of us. So, things get stale. To prevent this, it is necessary that you clean your refrigerator every three to four days. Thus, whatever you put in it will be clearly seen and you will consume it. This will not spoil anything available with you.

Always keep an eye that fresh food, i.e., fruits, vegetables, meat and milk are kept in the fridge, as keeping them outside for long will ruin them and your money will also be lost. There are some food items that you can keep for months; you just need to store them rightly. For example, items like tomato ketchup, butter, milk maid etc. can be kept in the fridge for a longer time.

Eat the rice kept in the fridge when it again acquires normal temperature and do not heat it again. Keep food in the fridge within four hours of cooking in case you don't want to consume immediately.

You can mix a little bit of salt to keep the milk last for longer days. After bringing the dry fruits home, roast them dry and store them in the fridge. Their flavour will not spoil and they will be useful for longer days.

- **Serve as per need**

Serve as much as the person can eat. After serving more than necessary, we often have to throw away the remaining food in the litter bin. Sometimes food is wasted while feeding babies, avoid it too.

- **Label the remaining food**

On the remaining food, you can label the maximum number of days to finish. Apart from this, you can make a new recipe out of the old food to utilise it fully.

- **Enhance life of food**

There is a certain temperature suitable for consumption of everything. After keeping it at this temperature it is better to eat food for the next eight hours. Understand that bacteria are more likely to grow in the cooked food than the raw food.

II. CONCLUSION

At last we want to conclude that please save food and save world. As we all know that food waste is a global phenomenon. One third of the food that is produced every year around the world, i.e., approximately 1.3 billion tonnes gets wasted. The lost food is so much that it can feed billions of people. The World Food and Agriculture Organization, the International Agricultural Development Fund and the World Food Program are doing their bit to help the world save food. But each one of us needs to make our contribution in saving the colossal waste of food to free the world from hunger.

REFERENCES :

- [1]. Aiello, G. Mario, E., & Muriana, C. (2014). Economic benefits from food recovery at the retail stage: an application to Italian food chains. *Waste Management* 34(7), 1306-1316.
- [2]. Arvanitoyannis, I.S. (2010). *Waste management for the food industries*. New York: Elsevier.
- [3]. Beise, M., & Rennings, K. (2005). Lead markets and regulation: a framework for analyzing the international diffusion of environmental innovations. *Ecological Economics*, 52(1), 5-17.
- [4]. Belk, R. (2014). You are what you can access: Sharing and collaborative consumption online. *Journal of Business Research*, 67, 1595-1600.
- [5]. Beretta, C., Stoessel, F., Baier, U., & Hellweg, S. (2013). Quantifying food losses and the potential for reduction in Switzerland. *Waste Management*, 33(3), 764-773.
- [6]. Betz, A., Buchli, J., Göbel, C., & Müller, C. (2015). Food waste in the Swiss food service industry— Magnitude and potential for reduction. *Waste Management*, 35, 218-226.
- [7]. Bloom, J. (2010). *American wasteland: How America throws away nearly half of its food (and what we can do about it)*. Da Capo Lifelong Books.
- [8]. Boud, D., Keogh, R., & Walker, D. (1985). *Reflection: Turning experience into learning*. Routledge: London.
- [9]. Buzby, J.C., & Hyman, J. (2012). Total and per capita value of food loss in the United States. *Food Policy*, 37(5), 561-570.
- [10]. Carrillo-Hermosilla, J., Del Río, P., & Könnölä, T. (2010). Diversity of eco-innovations: Reflections from selected case studies. *Journal of Cleaner Production*, 18(10), 1073-1083.
- [11]. Chou, C.J., Chen, K.S., & Wang, Y.Y. (2012). Green practices in the restaurant industry from an innovation adoption perspective: Evidence from Taiwan. *International Journal of Hospitality Management*, 31(3), 703-711.
- [12]. Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Newbury Park, CA: Sage Publications
- [13]. Cowper-Smith, A., & de Grosbois, D. (2011). The adoption of corporate social responsibility practices in the airline industry. *Journal of Sustainable Tourism*, 19(1), 59-77