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Stint for a Paradigm Shift - Food Waste to Food Security

ArivuchudarR.

Dept. of Nutrition and Dietetics, Periyar University Salem-11, India

ABSTRACT

Food waste,the wordcomprises of all the waste or left -oversresulting from food at different phases, initiating from the harvest till it reaches the household levels. Food waste is defined by FAOas “the food appropriate for human intake being superfluous, whether or not after it is kept beyond its expiry date or left to spoil”.Often this is because food has spoiled, but it can be for other reasons such as oversupply due to less market demands, or changes in individual consumer shopping or eating habits. In developing countries in contemporary years, due to globalization, urbanization and increase money flow the food is being bought at large beyond the needs and being squandered easily, is a keymenacing factor for food waste management systems and food security as well.This also leads to difficulties in upholding a hygienic and sanitary environment due to food waste disposal hitches, as a resultant severe health hazards and spread of many communicable diseases is uncontrollable.This article is reviewed with the intention of highlighting the various sites of food waste origin and the means and ways to overcome so as to ensure food security.

KEYWORDS: Food Waste, Food Security, Management, Disposal.

Corresponding Author

R.Arivuchudar

Assistant Professor

Department of Nutrition and Dietetics

Periyar University

Salem-11TamilNadu

Email: achudar24@gmail.com

INTRODUCTION

The food waste is a word of apprehension in emerging countries like India, as it throws to asombreecological and monetarydispute. Although the world's aggregate food produce amounts to serve twice the global population, it is sympathetic that, about 20 crore people starve and 7000 starve to death every day[1]. Also, India ranks 97th among 118 countries in the Global Hunger Index for 2016[2]. These integers frighteningly impetuses us to relate to the terms food produce, food waste and food security.On one hand, Globalisation and increased purchasing power in evolving nations, from the millennium year has brought insights into the varieties of foods accessible across, leading to imprudent and insalubrious choices of food followed by, throwing away of foods without guilt if cannot be consumed and on contrary, millions of children and families famish. Hence, it is imperative that the availability of food is made even for the entire universal population, to overcome hunger, poverty and stabilize food security and economy[3].

ORIGIN OF FOOD WASTE

The journey of food from the place of produce to our plates is a longer mile and now a days the foods travel by air, ship and truck before it reaches us, which means there is possibility for wastage at each point of destination.

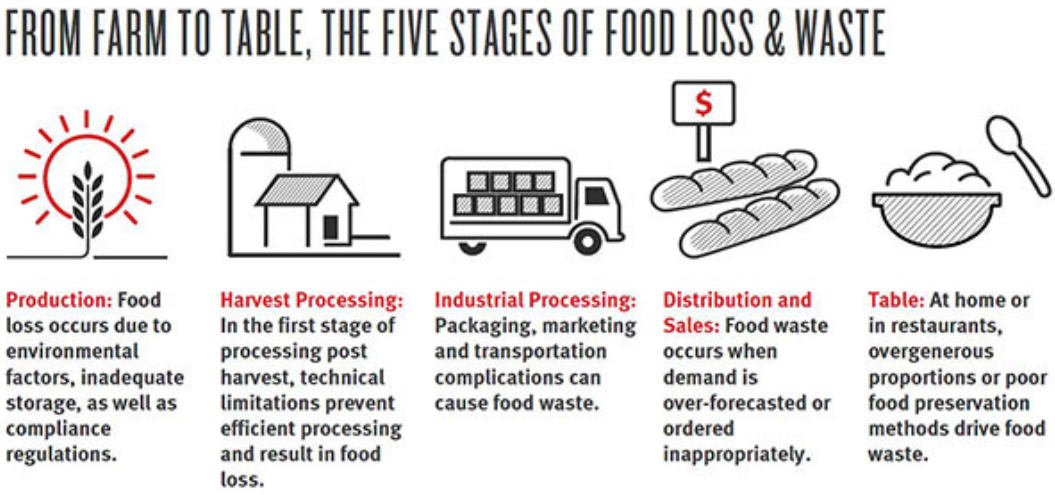

Figure: 1Stages of Food Waste

Source: plasticpackagingfacts.org

Each stage is listed below:

a) Farm Production:

The food waste opening at the early phase of food value chain i.e. during agricultural produce is found mostly in developing countries[4] This may be due to poor irrigation facilities, improper

training for farmers to alternate adoption technologies during water shortage and unfavourable climatic conditions, misuse of manures and pesticides and lack of man power to harvest on time[5].

b) Post-Harvest Handling and Storage:

Too much of produce and perishable foods if not stored properly post -harvest lead to heavy loss even before reaching the markets[6]. The standards set for the size, weight, colour and appearance are also contributing factors to these wastes.Proper infrastructure, quick transportation, Protection from insects and rodents and strengthening the packaging industry will greatly prevent huge losses arising in this stage[7].The percentage of food waste was projected to be 54% during produce and post -yield and proper education and training to farmers will immensely prevent this loss.The study by ICAR (2013) has appraised that in India, the loss of agricultural produce during harvest and post-harvest phases alone was to the tune of Rs. 92,651 crore[8].

c) Processing:

The stages of processing, dissemination and consumption contributes to 46% of food cast-off. According to European Commission (2012) the stage of processing alone account for 39% of food waste which might be due to damages that occur during handling and packaging, machinery defects, food safety issues and over-production[9].Food waste also result from handling procedures and excellencecompliance, and food products not fulfilling eminence demands from buyers. Also, water used by the processing industry especially meats, is very high and the residues of processing have a deleterious impact on the environment too[10].

d) Distribution:

In the PDS and supermarkets, lots of foods are wasted during stacking, distribution due to improper handling, rodents piercing the sacks and spilling[11]. Processed foods which reach the expiry dates before taking place the store for sale are thrown away. Milk is wasted in enormous amounts during distribution.

e) Cooking and Consumption:

Food waste from this phase ascend from the homes, hospitals, restaurants, parties and functions. Over production of foods, improper cooking methods, inappropriate stacking for a longer period of time and the excess availability of foods for purchase are the causes for food waste from this category[12].

Table-1Major Categories of Foods and Percentage of Food Waste

Food Type	Major Categories of Processed Foods	Residues Treated as Food Waste	Waste from Each Category (%)
Cereals And Grains: Rice, Wheat, Corn, Millets	Flour, bread, cookies and crackers, cake, starch, flakes, oil.	Straw, stem, leaves, husk, cobs, hulls and fibre, bran, germ, gluten, steep liquor.	30
Fruits	Fruits juice, preserved fruits ,jams, jellies	Rotten fruits, stem waste, pits, seeds, peel, pulp, rind.	45.7
Vegetables	Vegetable juices, dries veggies, vegetable oil, potato starch, sugars from beet	Pomace, stem waste, pits, seeds, peel.	46.2
Dairy Products	Milk, butter, cream, yoghurt, cheese, ice cream	Sweet and sour whey, process waste water containing residual solids	17.1
Fish And Sea Foods	Canned fish, smoked fish, salted fish, processed fish	Scales, fins, shells, bones, gut, remains, fish oil	34.7
Egg, Poultry and Meat	Processed red meat(beef, pork)and products, processed poultry and products	Egg shell, Skin, Intestine waste, water used for processing	21.5
Beverages	Cocoa, coffee, tea, fruit based alcohols, grain-based alcohols	Shells from cocoa and coffee beans, cocoa, molasses, steep liquors	-
Oil Seeds	Oils, hydrogenated fats, polyunsaturated fatty acids	Press solids and cakes, oil water emulsion, rancid oils, shells of oil seeds	22.1
Sugars	Sugars, purified sugars, confectionary, bakery products	Dilute sugar solutions, Molasses	-

MEASURES TO REGULATE FOOD WASTE

1. Government Initiatives and Policies:

- ***Mega Food Parks:***Links agricultural production to the market by bringing together farmers, processors and retailers to ensure maximizing value addition, minimizing wastage, increasing farmers' income and creating employment opportunities, particularly in the rural sector. The Scheme envisages the creation of support organization structure in a well-defined agricultural and horticultural zone for setting up of modern food processing units[13].
- ***Cold Chain, Value Addition & Preservation Infra:***It covers pre-cooling facilities at production sites, reefer vans, mobile cooling units as well as value addition centers which include many infrastructural facilities.
- ***Creation of Food Processing & Preservation Capacities*:** To increase the level of processing, value addition leading to reduction of food wastage.

- ***Agro Processing Cluster*:**Effective backward and forward linkages are created by linking groups of farmers to the processors and markets through well-equipped supply chain consisting of modern infrastructure for food processing closer to production areas in order to reduce food waste.
- ***Food Tech India (FTI)*** : is a public-private initiative combining the strengths of Dutch agro-food companies, knowledge institutes, governmental agencies and their Indian counterparts to reduce food waste and food wastage in India through the establishment of an improved supply and cold chain.
- ***Indian Food Sharing Alliance***: IFSA has been formed by the Food Safety and Standards Authority of India (FSSAI) to help solve India's food waste and hunger crisis by working with various partner organizations, Food Recovery Agencies and NGO's.

2. Grass Root Education and Training:

Joining farmers together in cooperatives or professional associations can help to greatly reduce food losses by increasing their understanding of the market, enabling more efficient planning, enabling economies of scale and improving their ability to market what they produce.For instance, improved rice-storage bags provided to farmers in Philippines have helped cut losses of rice by 15 percent. In West Africa, use of solar dryers to extend the shelf life of fruit and tubers is showing promise in reducing post-harvest losses[14]. Often, food losses can be significantly reduced simply through training farmers in best practices.

3. *Individual Liabilities:*

- Inculcate wise shopping practices.
- Follow proper storage.
- Improve consumption pattern.
- Use left-overs. If not donate to needy.
- Teach children not to waste food in plates.

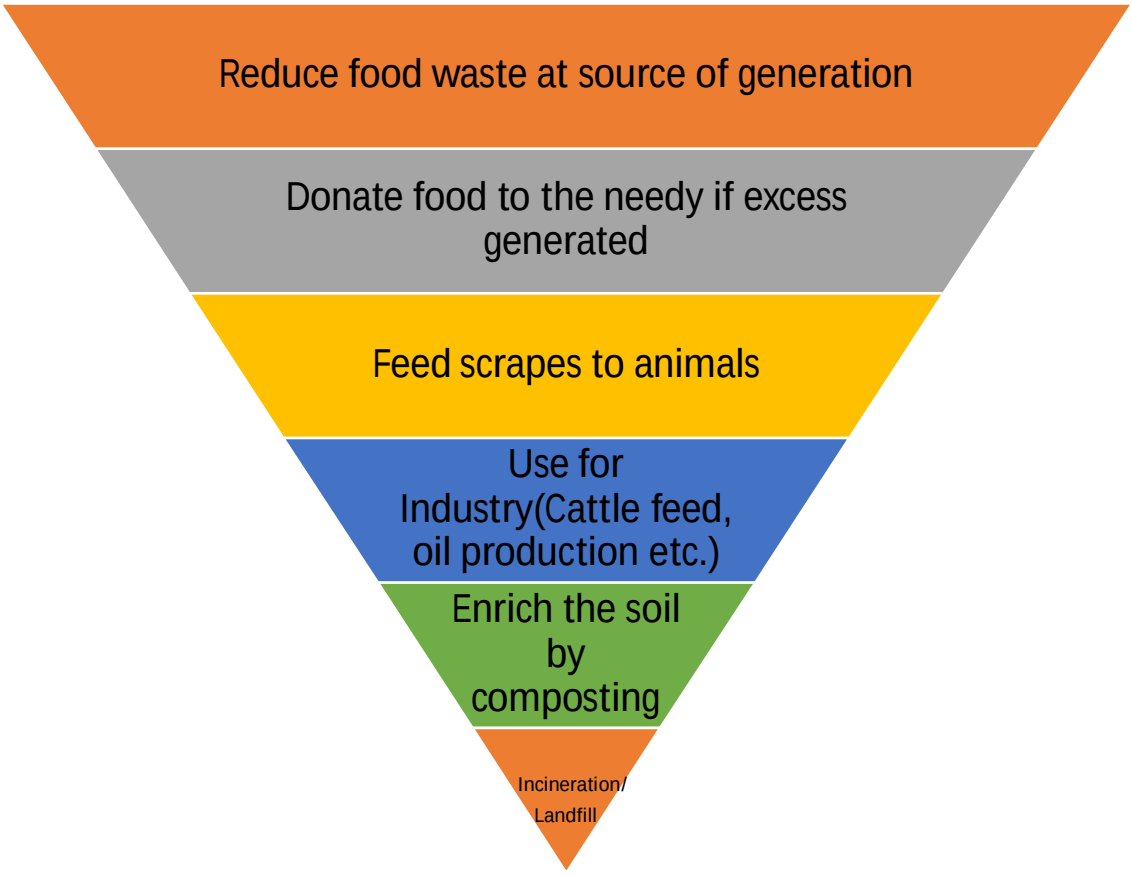

Figure: 2 Discrete Ways to Reduce Food Waste by Individuals

CONCLUSION

FAO reportsthat one third of the foodstuff produced in the world for human intakeeach year, which is circa 1.3 billion tonnes gets futile.It is estimated that saving one-fourth of the food currently lost or wasted globally would be enough to feed 870 million hungry people in the world, of which the highest number (about 194.6 million) are in India[15]. Maximum food loss happens during transit from farm to fork which is preventable. These losses not only impact producers with reduced income and consumers with increased costs, but also challenge overall food security. It is high time to sense this giganticvolume of waste and act wisely to benefit humanity and the environment as well.

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