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Management and Utilization of Food Waste

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Abstract:

The problem of food waste has attracted considerable interest from food producers, processors, retailers, and consumers alike. The result of food wastage is that the one third of global food supply being lost and wasted through the global food supply chain. Food waste directly impacts the profitability of the whole food chain which cause economic problem. It is a relevant issue both in developed and developing countries and a major contributor to global food insecurity. In developed countries, one of the main contributors to food waste are consumers. Increasing concerns about food security and environmental impacts, such as resource depletion and greenhouse gas emissions attributed to food waste, have intensified attention to the topic. This paper maps the still small but expanding academic territory of consumer food waste by systematically reviewing empirical studies on food waste practices and management activity of food waste. It is essential to have a comprehensive understanding of the various sources of food wastes throughout the food supply chain.

Keywords: Food Waste, Management, Supply, Insecurities

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Introduction

Food that was purchased but not consumed and ends up in a garbage is the most commonly mean of food waste. Defining food waste is not always straightforward since distinguishing between edible and nonedible parts of food is subjective. There is no single definition of food waste but a very first definition of food waste was given by UN Food and Agriculture Organization (FAO) which is as "any healthy or edible substance that instead of being destined for human consumption is wasted, lost, degraded, or consumed by parasites at every stage of the food supply chain".

A distinction between food waste and food loss was proposed by Swedish Institute for Food and Biotechnology (SIK), Food losses "take place during agricultural production, post-harvest, and processing stages in the food supply chain," On the other side food waste occurs "at the end of the food chain (distribution, sale and final consumption):" simply the food which is not consumed by the end user, which includes the non-edible parts of food is consider to be "food waste".

Growing public concerns about hunger, conserving the environment, and the effect of socioeconomic factors have accelerated research into food waste. Otherwise food waste was not considered to be a significant economic cost or a waste of natural resources.

Food waste research is aimed at finding better ways of using this natural and renewable resource. All food products go through a life cycle, starting from the farm and progressing through processing, distribution, retail, and finally consumption and/or dumping. Unfortunately, there will always be a certain amount of waste produced in the food supply chain.

Food waste is increasingly recognized as an urgent issue among governments, businesses, NGOs, academics, and the general public because of growing environmental but also social and economic concerns. Food wasted on household level are very high. In response, there is a mounting evidence base on the quantities of food wasted and the related emissions along the food production-consumption chain. To prevent further climate change the prevention and management of food waste is very important.

Management activity for food scraps:

Source reduction: The potential for reducing food losses in the food service industry and within households is great, with a number of places to focus. Focus areas include:

Evaluation of food which is what food is being wasted and where the waste is generated This knowledge allows businesses and households to gain an understanding of what is in the waste stream, where it is generated and how much is thrown away.

Kitchen waste should be reduced (pre-consumer for the food service industry).Storage of food is done in a way to prevent from spoilage preparing food properly so it can be consumed, planning portion sizes, and finding uses for vegetable and fruit trim waste.

Reducing post-consumption food waste. A proper planning is required for households and food service to eliminate plate waste and effectively using any prepared foods that are leftovers. For food service, menu modifications, such as reducing the number of menu items and a plan to use leftovers in other menu items the next day, can also reduce food waste.

Feed Hungry People - A 2009 U.S. Department of Agriculture Hunger Survey (Nord, et al. 2010) concluded Oregon is one of the hungriest states in the nation, with more than half a million Oregonians facing "food insecurity." Because of the lack of resources households finds difficulties for providing enough food for their family.

Much of that wasted food was edible, and if captured, could have fed hungry people. Non-perishable and unspoiled perishable food can be donated to local food banks, soup kitchens, pantries and shelters. Food banks and food rescue programs frequently offer free pickup and provide reusable containers to donors.

Feed Animals – the residues of food can be used to directly feed livestock or be processed into commercial animal feed or pet food. Feeding waste food to livestock or having the food processed into animal feed is sometimes a viable option for recycling food scraps and can provide economic and environmental benefits.

Industrial/ Commercial Uses – To create products and energy food residuals can also be used in certain industrial and commercial processes. A number of industrial technologies can use different characteristics of food scraps to create new products or create energy. Some of these technologies include:

Rendering: it is a process in which meats, fats and oils converts into various products such as animal food, cosmetics and soap.

Biodiesel production facilities: in this facility the fats, oils and greases converts to create biodiesel which in turn can be used as motor fuel.

Anaerobic digestion facilities (biogas plants): In biogases plants food waste and manures are used to break down biodegradable material in the absence of oxygen to create methane gas and liquid and solid substrates. Methane generation is often the primary purpose of these facilities, thus the term "biogas plants." Methane is burned to create electricity while the solid and liquid substrates can be used as fertilizers, soil conditioners, livestock bedding or compost feedstock.

Composting – it is as like biogas plant but in this the breakdown of microorganism takes place in the presence of oxygen. Unlike biogas plants, composting facilities do not generate electricity, as they create little methane; nutrients are stored in the finished compost. Composting can be an efficient method for recycling organic materials that might otherwise be disposed of in a landfill.

Review of Literature

Saravanan, et al. (2013) to minimize potential human and environment risks it is important to improve solid waste management in order. Almost 60 percent of solid waste contains biodegradable waste which could easily converted into manure. Cheap, eco-friendly, wealth creating and sustainable option of waste management is effective microorganisms. This action will lead to waste reduction at landfill, job creation and production of organically produced food crops.

Segre, *et al.* (2014) to prevent food loss and food waste various number of policies were identified according to the segment of the food supply chain and socio-economic context. To the initial segments of food supply chain where the most loss occurs prevention measures should be applied in most of the developing and emerging countries. While in industrialized countries measures should be targeted particularly to the last steps. Further research is needed to bridge the gap of knowledge about several fundamental aspects.

Turon, et al. (2014) for the chemical industry, creating a smoother transition to the bio-economic era food supply chain waste supply a low cost and readily available feedstock. Integration of bio refinery concepts in traditional food industry plants for the valorization of food waste will create various innovative to industrial sectors.

Jessica, et al. (2015) for future research, the factors of especially crucial influence should be considered as variables. Future research could strive to explore certain areas of the overall picture more in detail, by focusing on a specific target group, situation, food category, etc., and therewith providing results with greater practical application. Moreover, methods used to limited extent, such as – admittedly more costly – interventions will allow moving from analysis to the provision of potential solutions.

Ghosh, et al. (2016) to resolve food waste problems and promote food waste utilization strategies in any country will require effective communication and cooperation between all stakeholders. In many European countries utilization and management strategies like bioenergy production and regulating landfill costs to discourage waste generation is adopted. The key to successful food waste utilization and management is to develop appropriate ecofriendly reprocessing technologies that can convert all the valuable components present in the waste into valuable products and reduce the amount of waste going to landfill.

Koc, (2017) one of worrisome issue for people and environment is food wastes. Through chemical, biological and thermal method Food wastes and by-products can be converting into valuable. The appropriate conversion method is selected with respect to composition of food wastes and by-products and the aim of recovery process.

Paritosh, et al. (2017) the conversion of food waste into energy via anaerobic processes in terms of methane is economically viable. In the collection and transportation of food waste difficulties may be raised. Nevertheless, the stumpy or no cost of food waste along with the environmental aids considering the waste discarding would

Conclusion

Food wastes are one of most worried issue for both people and environment. Because of social, economic and environmental reason the management and utilization of food waste is very important. The total amount of food waste is immense and it has a high economic and environmental impact. Food wastes and by-products can be converting into valuable products through thermal, chemical and biological methods. The activity like feed hungry people, commercial uses of food waste are quite important for the management of food waste. For the aim of recovery process appropriate conversion method must be selected with respect to composition of food wastes.

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