



ZERO FOOD WASTE: ISSUES, CONCERNS AND CHALLENGES

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Abstract:

Since waste in any form directly affects the sustainability of the human race, it is necessary that the advancements in different sciences be judiciously used to tackle this problem. Though many researchers have proposed ways to deal with these problems, the integration of these solutions appears to the need of hour. In the backdrop of above, this study was carried out to know the recent advances in the field of zero food waste. For this study, the literature from reputed publications was collected and is discussed in view of the objectives of this study. The literature clearly shows that there appears a large gap as far as technology developments in the field of waste minimization as well as utilization or recycling.

Keywords: *sustainability, zero food waste, technology developments, waste minimization*

Introduction:

Waste in any form causes great loss of value and resources to the society. Besides, humans are the only species on earth that create enormous amount of waste, which needs extra efforts for management. Hence, if we can learn to identify all types of waste and their elimination, we can save money and ensure a more sustainable world for us as well as for others. The concept of zero waste suggests that all type of waste should be eliminated from all the systems. Instead, waste should be thought of as a “residual product” or simply a “potential resource” to counter our basic acceptance of waste as a normal course of events. Opportunities such as reduced costs, increased profits, and reduced environmental impacts are found when returning these “residual products” or “resources” as food to either natural or industrial systems. This may involve redesigning both products and processes in order to eliminate hazardous properties that make them unusable and unmanageable in quantities that overburden both industry and the environment. Zero Waste strategies consider the entire life-cycle of





our products, processes and systems in the context of a comprehensive systems understanding of our interactions with nature and search for inefficiencies at all stages. With this understanding, processes can be redesigned so that waste generation can be prevented. However, it would be wise if we work to "design" our wastes, if any, so that they have future applications. Furthermore, a Zero Waste strategy leads us to look for inefficiencies in the use of materials, energy and human resources. Besides, to achieve a sustainable future, very high efficiency will be required in the use of all resources in order to meet the needs of all of the earth's inhabitants and a Zero Waste strategy directly supports this requirement. In view of the importance of zero waste concept, this study was carried out to know the recent efforts by the researchers.

Methodology:

In the present investigation, the collected literature was reviewed using the standard principles of deductive reasoning and content analysis. All the literature used in this study was selected from standard scientific journals with science citation index number. The literature has been presented in a chronological method and based on the review; the discussion is presented here under.

Discussion:

The benefits of a Zero Waste strategy can be achieved in nearly any kind of organization. For example, community programs can be designed to consider all uses of materials and energy both in operations and services. Focus on zero solid waste to landfills and zero wasted energy can result in new jobs not only in the recovery process, but also in the use of recovered waste products as raw materials to produce new products. Business programs and domestic events can be designed to uses of energy and materials in products, processes and services. Zero waste can be applied not only to energy and material use, but also in the food stuff, offices, classrooms and cafeteria. As reported by Timmer et al., (1983), anyone who examines the world's annual output of basic grains-rice, wheat, corn, and other coarse grain and compares it with the world's total population will make a startling discovery. If the grain is converted into calories and protein





available on a daily per capita basis, the total is significantly greater than the amount of nutrients needed for human survival, which points towards the food wastes, which needs great attention as far as its use is concerned. Furthermore, Lang (2005) in his paper studied how a land-scarce city-state is trying to achieve its goals of zero landfill and zero waste through the greening of industry. Author suggested that to green its industries, there has been a coordinated effort to develop a recycling industry and to initiate public-private partnerships that can advance cleaner environmental technologies.

Takagi et al., (2006) in their investigation studied the main concepts of the Zero Hunger Programme of the Federal Government, and analyzed its implementation in the first two years and the challenges for the consolidation of the Food and Nutritional Security Policy in Brazil. Author stated that starting from the recognition of the right to food, the Zero Hunger Programme combines direct support to poor families, which is making good progress, with structural policies as agrarian reform, literary teaching, etc that, by their nature, may require more time to implement but are essential for sustainable development in order that poor people may have access to work and productive resources to guarantee their food security. Whereas, Christensen and Neil (2009) have reported that in both developed and developing countries, cities are dealing with issues of community food insecurity - of people not having enough appropriate food to eat. And all over the world people are realizing that they are hungry not because there is not enough food being produced, but because our current food systems are uncertain and unjust and end in great wastage. Moreover, Godfray et al., (2010) have advocated a multifaceted and linked global strategy to ensure sustainable and equitable food security, different components like zero food waste generation and innovative strategies of food related processes.

More recently Lehmann (2011) stated that beyond energy efficiency, there are now urgent challenges around the supply of resources, materials, energy, food and water. He further stated that urban farming has emerged as a valid urban design strategy, where food is produced and consumed





locally within city boundaries, turning disused sites and underutilized public space into productive urban landscapes and community gardens. Furthermore, such agricultural activities allow for effective composting of organic waste, returning nutrients to the soil and improving biodiversity in the urban environment. According to Yates and Gutberlet (2011), waste remains a de-explored aspect in the developing world cities and its urban political ecology. In view of this, authors proposed integrated organic waste management, consisting of decentralized household-waste collection by organized recycling groups, waste processing, and the utilization of food waste for composting and urban food production, as a way of reclaiming and recirculating urban natures for potentially positive socio-ecological change. Pool (2011) advocated systematic efforts for waste reduction, especially during the festival seasons, when the high food wastage is expected.

Conclusions:

It has been reported that over the past three decades the world has produced more grain per capita, not less, however, still the food products are not available for a large population and in some cases, there is huge food wastage. Hence, in order to make it (food) available to all the population, novel strategies are needed to minimize the food wastage and waste recycling. Because food is so basic to our physiological and emotional well-being, why societies still do not work out mechanisms to distribute food more equally needs to be looked into through a different prism. Continuing population and consumption growth will mean that the global demand for food will increase for at least another 40 years and hence, newer food waste minimization strategies become more important as well as relevant.

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