

The Raising Concern of Food Waste and Food Loss in Indonesia to Achieve a Sustainable Consumption

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Abstract – The effect of food waste and food loss is more severe than other recent environmental issues such as plastic usage. Every year, Indonesia needs a 19 million kilos food supply, yet 1.3 billion tons per year being wasted and lost, which affects the value of food and production itself and hazardous to the environment. It is estimated yearly, food waste producing 3.3 billion tons of CO₂ and wasted 1.4 billion hectares of ripe land for vain. Globally, many individuals, organizations, and governments in several countries campaign to raise awareness to face this problem, including Indonesia. With the government's help, many organizations encounter this environmental issue by online media approach, physical campaign, encouraging households to reduce food loss by giving knowledge, and many more. They are reflecting other countries also become one of the ideas that can be implemented by society.

Keywords: Food Loss, Food Waste, Indonesia

Introduction

Food is an essential requirement for humans to carry on their lives. Food availability and adequacy play a crucial role in fulfilling enough calorie and energy for increased productivity and provide support for improving the quality of life and sustainability of development. Exhaustively, about 33% of food made for human consumption is lost or wasted, equal to a total of 1.3 billion tons of food consistently. Due to the production of resource-dense food, loss and food waste are indirectly accompanied by various environmental impacts, such as floods, deforestation, water and air pollution, and greenhouse gas emissions that occur in the process of food production, storage, transportation, and waste management (Schanes, Dobernig, & Gozet, 2018). The main problem for dealing with this problem is that food loss and waste happen throughout the food supply chain (Stangherlin & de Barcellos, 2018). In addition, wasted food creates consequences for environmental damage and disruption of public health and negatively impacts human welfare, ecosystems, the environment (Jain, Cepeda-Márquez, & Zeller, 2018).

Food losses happen at the supply chain, considered losses from agricultural products, harvests, transportation, storage, and processing activities (Stangherlin & de Barcellos, 2018). In this part of the food supply chain, food waste is a matter of behavior in consumers and other socially mediated attitudes and actions of households. This can be seen from the waste of food that is not used properly, such as buying in large quantities and become out of date because it is stored too long, so it is not worth eating anymore (Van Der Werf, 2018). It can not be denied that household produces a high amount of food waste, so, preventive action to reduce food waste is crucial to help and prevent the further climate changes (Schanes, Dobernig, & Gozet, 2018). Food waste is a big problem in the world. The United Nations has raised concerns about this by making SDG 12. Thus, Sustainable Development Goal 12.3 is designed to halve "global per capita food waste at retail and consumer levels" and reduce "food loss during production and supply chains, including post-harvest losses" that must be realized in 2030. Most of the research results into potential optimal environmental saving are focusing on changes in the diet of individuals (Usubiaga & Schepelmann, 2018).

Although it seems that there is already considerable interest from the community, government, and companies in managing food in a better way so that it does not become a waste, there are still three main gaps in knowledge: (1) the quality of food products; (2) human behavior that leads to food waste; and (3) development of interventions to reduce nutritious food waste (Van Der Werf, 2018).

The objectives of this article were to describe the food waste and food loss in Indonesia and introduce the prevent action from minimizing.

Method

This article used a literature review to showed food waste and food loss in Indonesia. In this research, the relevant studies are based on the substantiation of food waste and food loss about why food waste occurs and has a significant impact on the environment.

Results and Discussions

Food Waste and Food Loss and Its Impact

According to FAO, 2014, food loss refers to food loss between the producer supply chain and the market. Food loss problems can be caused by pre-harvest processes such as food not following the quality desired by the market, difficulties in storage, handling, and packaging of food, so producers decided to discard food because the market rejects it. Food loss does not only occur in developing countries. In developed countries, the rate of food loss is also relatively high, although not as large as in developing countries. Food loss in developing countries is due to high levels of food production in developing countries but is not matched with adequate technology. Before reaching food consumers, something is damaged in the process or not by the quality desired by the market.

Food waste is considered to be a part of food loss. It is understood as food intended for human consumption being discarded or left to spoil due to the decision taken by actors along the food supply chain (FAO, 2018). Left-overs food refers to discarded foods where food products or alternative food products are still safe and nutritious for consumption. So the leftover food itself is food that is ready to be consumed by humans but is discarded without reason or food nearing the expiration date.

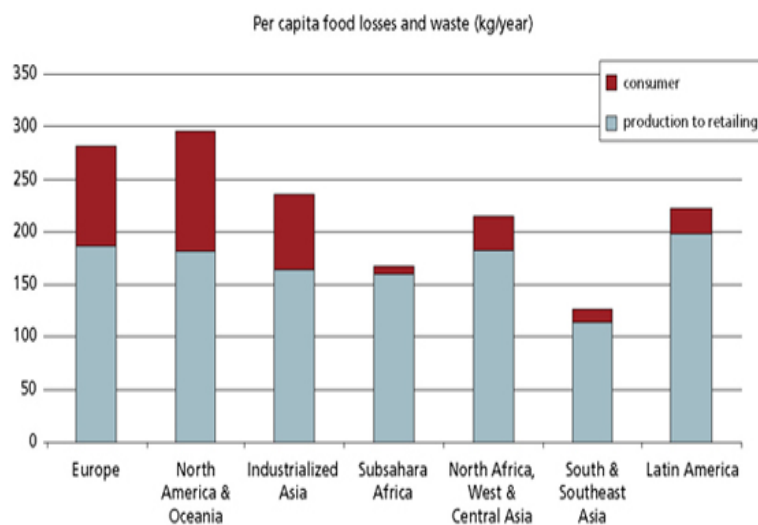


Figure 1. Food losses and waste per capita (kg/year) in the world (2011)

Based on Figure 1, about 120-200 kg/year of food is lost from production until retailing process. Food waste from consumption activity from consumers the biggest occurs in North America and Oceania. The food waste from North America and Oceania could use as food for people in another country. For example, in Indonesia, with 250 million people, food needs are

around 190 million metric tons. If food loss and food waste could be used, it means all Indonesian people could be fed. Unfortunately, in Indonesia itself, there is a lot of food loss that occurs, and one of which occurred in Banyuwangi, where the dragon fruit farmers throw ten baskets of fresh dragon fruit into the river. This is caused by farmers failing to sell the dragon fruit to collectors because it does not match the quality desired by the market even though it is still suitable for consumption. This case occurs because of the lack of knowledge of farmers to process food ingredients in the hands of consumers and following market quality. Food loss occurs in many developing countries, especially in Indonesia (Weni, 2019). Increase the efficiency of the production process, especially for agriculture products which are perishable, need to be executed.

For the food waste phenomenon, in most studies, the people's attitudes and behaviors influence food waste volume. This attitude can be related to general behavior that increases food waste or specific aspects of this problem, such as food consumption or packaging that is not optimal. Based on research found through a review of general aspects of food waste, one of the fundamental causes of food waste is a lack of understanding of food waste from consumers (Stangherlin & de Barcellos, 2018). Some studies use psychology-oriented approaches, such as planned behavior theory. For instance, attitudes, subjective norms, and perceived behavioral control are complemented by self-identity, anticipated regret, moral norms, and descriptive norms to predict intentions to reduce household food waste. Something similar happened in a routine related to food (Stangherlin & de Barcellos, 2018).

As the second-largest food waste, Indonesia is wasting nearly 300 kilograms of food per person each year (Waste4Change, 2018). Even though Indonesia does not exist in the first rank, this does not mean that it needs to be underestimated. Several traditions in Indonesia contribute a lot of food waste, namely weddings, engagements, circumcision, and several others. In general, these events are held on a large scale so that a lot of food is also needed for the guests. It was found that 90 percent of food supplied during marriage ceremonies in Indonesia and Saudi Arabia as the No. 1 country ended up in the trash box because people used the event to show off their status (Waste4Change, 2018). The increasing number of food waste has been foreseen for the next 25 years because of the monetary and rising population numbers, especially in Asia. It has been represented that the yearly proportion of urban FW in Asian countries could increase from 278 to 416 million tons from 2005 to 2025 (M. Melikoglu, 2013). Around 1.4 billion hectares of ripe land (out of 28% agrarian territory available) are utilized every year to create lost or squandered nourishment. Aside from nourishment and land asset wastage, the carbon impression of nourishment waste is assessed to add to the ozone-depleting substance (GHG) discharges by amassing around 3.3 billion tons of CO₂ into the environment every year (Paritosh, 2017). Generally, this sustenance waste, a portion of metropolitan solid waste, is singed or dumped in open zones that may cause outrageous well-being and ecological issues. Consuming sustenance waste involving high dampness substances realizes the appearance of dioxins, which may further provoke a couple of environmental problems (Paritosh, 2017).

Additionally, the organization or company can reduce consumption related to substrate estimation because it interferes with the recovery of enhancements and critical engineering mixtures of residual substrates originating from food scraps consumed. In response to this, appropriate procedures are required for the organization of sustenance waste to find the solution to it (H. Ma, 2009).

The Prevention Action

Many activities can be applied in reducing food waste, and it starts from household waste processing. As household waste becomes the most significant contributor, raising the awareness of people should be applied through interactive seminars or talk shows that discuss

how to buy grocery shopping effectively & efficiently and do-it-yourself (DIY) recycle method. For the past few years, many new organizations and communities have been concerned about this matter, especially top climate change. Many activities are created, such as less-waste seminars, DIY soap using soapnut (lerak), recyclable food packaging, and also bring your tumbler or food container movement. Such action shows a positive reaction from the community and raises awareness of people, especially household moms & children, since their community target tends to lead.

There are many good case practices from other countries that are applied in Indonesia to reduce food waste. For example, Germany and New Zealand, although Indonesia and both countries had so many differences in many things, people still can imply the action taken. First, in Germany, studies show based on experience taken, people are encouraged to commit and implement goal-setting techniques by using grocery shopping planning as one way. Results showed the adequacy of the picked intercession methodology by uncovering a more grounded improvement of self-announced exhibitions of the recorded nourishment squander counteracting practices in the exploratory gathering contrasted with the control bunch a month following its execution (Schmidt, 2016).

Another example that can be implement came from New Zealand. In 2002, The New Zealand Squander Procedure was presented by the New Zealand Government in 2006 and 2010. The objectives of this technique are "decreasing the unsafe impacts of waste" and "improving the proficiency of asset use." While the report notes that there have been massive upgrades over the most recent ten years in better overseeing and limiting waste. A scope of variables including better access for more individuals to reusing offices, the volume of waste going to landfill keeps on rising (this incorporates family unit and modern waste). This is halfway credited to expanded paces of utilization and spending power. The Waste Minimizations Act (WMA) 2008 was an endeavor to address New Zealand's waste difficulties. The WMA 2008 was presented in September of that year "to support squander minimization, and a decline in the waste transfer to – (a) shield the earth from damage; and (b) give ecological, social, financial, and social advantages." In 2011, the MfE stated, all things being equal, that it had been gaining great ground given the Demonstration, yet that despite everything, it needs to improve (Tucker, 2016).

Several actions that can be taken are starting to shop at the bulk store, bring your container while shopping, and supporting the related organization by using their services such as "A Blessing to Share" by Food Cycle Indonesia which working on services to pack food at a big event such as wedding ceremony and distribute the leftover for people in needs.

Conclusions and Recommendations

Food waste and food loss still happen and need to slow down and minimize now. In Indonesia, food loss still occurs in agriculture production, caused mainly by a lack of technology, supply chain management, and market information.

Prevention action for food waste could benchmark other countries because the leading causes of food waste are consumer behavior and attitude.

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