KnE Social Sciences
The 6th International Conference on Technology, Education, and Social Science: Education and Social Science
KNE Publishing

Research Article

# The Policy Review of Private Sector Food Waste Management in Hotel (Empirical Study in Indonesia)

**Dora Kusumastuti[1]*, Sutoyo[2], Ahmad Zubair Ibrahim[3], and Maya Sekar Wangi[4]**

[1]Faculty of Law Universitas Slamet Riyadi, Surakarta, Indonesia
[2]Faculty of Teaching and Educational Sciences Universitas Slamet Riyadi, Surakarta, Indonesia
[3]Universiti Utara Malaysia, Malaysia
[4]Faculty of Social and Political Sciences Universitas Slamet Riyadi, Surakarta, Indonesia

**ORCID**
Dora Kusumastuti: https://orcid.org/0009-0007-6049-2712

**Abstract.**
The problem of food waste is a global problem that concerns the sustainability of the environment. Yet the government has a policy that regulates food waste resulting in the private sector also having yet to make a food waste management policy. To suppress the amount of junk food, a policy and cooperation with the parties concerned in the management of junk food are needed. It is hoped that after conducting this research, comprehensive policy recommendations for food waste management involving the government, private sector, and society can be developed. This research is expected to provide insights into the importance of synergy among various stakeholders in reducing food waste, whether through clearer regulations or the implementation of innovative waste management technologies. Additionally, the findings of this study are expected to raise public awareness about the environmental impact of food waste and promote sustainable food waste management practices at both individual and institutional levels. Thus, this research contributes to global efforts to create a healthier and more sustainable environment.

**Keywords:** policy, junk food, hotels

Corresponding Author: Dora Kusumastuti; email: dorakusumastuti4@gmail.com

**Published:** 8 August 2025

Publishing services provided by Knowledge E



Selection and Peer-review under the responsibility of the 6th ICTESS: Education and Social Science Conference Committee.



## 1. Introduction

The phenomenon of population and community dietary changes causes the increase of volume, type, and characteristics of waste to be increasingly diverse. Population demands a person to be more practical in fulfilling his needs. One of the impacts that arises is the greater volume of garbage that causes environmental problems. The main problems that carry trash and challenge environmental sustainability [1] the more limited the landfills also raises problems, which is inversely proportional to the problem of garbage that gets bigger [2].

The environmental impact of food production and consumption is increasingly exacerbated when food is consumed rather than wasted. FAO (2011) estimates that globally one-third of food produced for human consumption is lost or wasted in the entire supply chain[3] The environmental impact of food waste covers all the emissions that come from the various steps of the food supply chain. Then in the supply chain of a product, the higher the impact on the environment, because all of the emissions come from the upper step of the supply chain[4] The problem of food waste in the environment, social issues, economy, and because food waste is a contributor to greenhouse gas emissions[5].

The term food waste in Indonesia has not been specifically defined, but if refers to the definition given by the FAO food waste means the amount of trash generated at the time of making food and after feeding related to the conduct of sellers and consumers[6] Household food waste is a problem that is increasingly of concern to policymakers and organizations because recent research has shown that consumers contribute to about half of the food that can be eaten in developed countries.

The most widely applied measure to solve this problem is a knowledge and awareness campaign aimed at encouraging behavioral change by educating consumers about the scale and the impact of food waste, and on meaning of the label date[7] Food and food waste start to be lost from agricultural processes to the level of consumption[8].

Hong Kong is one of the city's densely populated in the world also has the problem of garbage which 40% is occupied by waste[9] Some countries such as Japan, USA, Singapore, Sweden, Canada, and Germany were able to infuse the waste into a source of energi[10] Twenty-five billion tons of food in Iran are wasted every year in the trash[11] Current estimates for the European Union show that 88 million tonnes (Mt) or $\pm$ 14 Mt of food waste is produced throughout the supply chain, which is the equivalent of 173 kg or $\pm$ 27 kg per capita and year[12]

Jakarta in 2015 as much as 2.7 million tons or 7,500 tons per day. Several 54% of which was organic waste such as food scraps and garbage in the capital estimated Indonesia would reach 9,000 tonnes per day by the year 2025. Surakarta one of the cities in Indonesia in the administration has an area of 44 $km^2$ generates garbage reaches 300 tons each day to landfills.

The goal of sustainable development of United Nations targets the reduction of 50% in waste food at the retail and consumer level, in addition to reducing the loss of food throughout the supply chain and production by the year 2030, therefore, can function

as a step significantly towards the reduction of environmental impacts resulting from food waste[13] Recently, the EU Waste Framework Directives have been revised to introduce new legislation which sets out the EU target of 50% reduction of food waste, by the goals of sustainable development goals (SDGs) United Nations. In addition, the directives also require that member states should report on their food waste every year from 2020 onwards (7).

Food losses and food waste a global problem because the food waste is significant globally problems of ethical, environmental, and economic management is difficult due to low visibility [14] because the food that ends up being trash and discarded, uses 25% of the entire clean water available or equivalent has spent 600 cubic kilometers of water, its impact 1.1 million people in the world do not have access to drinking water. Another impact is junk food while in the dumpster will generate methane gas that affects the incidence of the greenhouse effect[15].

In some countries such as in the United States campaigning on food recovery hierarchy has been disseminated to the public. The food recovery hierarchy is prioritize food waste reduction at the source and makes hoarding in landfills the most common option[16].

The problem of garbage has become a global problem, so the operations need to be done in a comprehensive and integrated from upstream to downstream to benefit economically, be more equitable, healthy for the community, safe for the environment, and change the behavior of the community. An effort to tackle waste management requires legal certainty, clarity of responsibilities and authorities of the government, local governance, as well as the role of the community and the business world so that waste management can run proportionately, effectively, and efficiently.

## 2. Literature Review

The development of an environmental justice paradigm has emerged as a result of the growing discourse on the environment. The development of awareness of environmental discourse gave rise to a movement of social communities as the impact of the presence of injustice in society. Next, divides the outline of environmental justice issues into several principles, namely:

1. Ecological principles, including (a) ecocentric through rebuilding the spiritual interdependence to the sacredness of the earth (nature), Affirming the unity of ecology

and the interdependence of all species; (b) stewardship (ethics), through ethical land use and renewable resources in a balanced and responsible; (c) reduce the consumption, the existence of responsibility and personal commitment to making choices to consume as little as possible the content of the earth's resources and generate waste as little as possible; (d) access to natural resources and fair access for a variety of educational resources; and (e) environmental education that emphasizes social issues the current and future generations as well as environmental education based on the appreciation and perspectives from a variety of cultures.

2. The principle of justice, includes (a) equity between generations with sustainable development for human beings and other living beings as well as repeated prioritize against our lifestyle to ensure sustainability of nature for the benefit of future generations; (b) the intragenerational equity, through recognizing the need for ecological urban policies, clean up and rebuild the cities to consider of balance with nature, to recognize the need for rural and ecological policy clean up as well as rebuild rural areas in balance with nature; (c) rights, freedom and respect for free from the destruction of ecology; (d) action emphatic environmental injustices that are a violation of international law.

3. The principle of autonomy, includes (a) the existence of a treaty and sovereignty; (b) self-determination by affirming the right of political, economic, and cultural self-determination; of all the people; as well as the affirmation of the sovereignty of indigenous peoples to self-determination.

4. Culture, that is, respect and appreciate the culture and language of each, respecting the cultural integrity of all communities, respect and appreciating their respective belief systems in understanding the natural world.

Understanding of justice environment has grown recently, but there are very few that are concern with implementing especially referring to demands for social action. Some understanding of justice environment still refers to the issue of equity or the distribution of disease and environmental benefits. But define a justice environment as equity incomplete. Activists, the community, and organization non-government (NGO) distribution. Justice demanded by justice global environment should meet three elements: equity in the distribution of environmental risk, recognition of diversity and the experiences of the community affected, and participation in the political process to make and manage environmental policy.

To develop a theory of justice, we must unravel the veil of ignorance, where we don't know our strengths and weaknesses of our own or our place in the social scheme, presenting the idea of justice judicial approved all of those who have political rights, and distribution should benefit all people so that is not the case of economic and social inequality in society.

Environmental justice is wide and can be divided into disemptif justice and procedural justice. Justice of distribution is related to the fair distribution of necessities such as adequate access to food and water, housing, income and employment, basic services such as health services, and equitable distribution of the bad and stuff the environment. Procedural justice is related to decision-making that is fair, responsible, and transparent about the environment. Schlosberg argues that in addition, the issue of recognition, ability, and participation need to be addressed to achieve environmental justice.

The environment is justice on fair treatment and involvement of which means of all people without any distinction of race, color of skin, origin of the state, or income concerning the development, implementation, and enforcement of the environmental laws, regulations, and policy. Some of the environment is the movement of other justice in layers in poor communities (grassroots) who fight for equal treatment regardless of their ethnic origin, culture, social and economic, terms of development, implementation and law enforcement, laws, and policies. Fair treatment also means there should not be any one or more certain groups who lose out due to a significant impact on the environment.

Based on the definition, environmental justice has three aspects as follows: (1) the aspect of procedural justice: involvement of all parties (the community) within the meaning; (2) actual aspects of justice substantive: the right to enjoy a healthy and clean environment; and (3) aspects of justice distributif: spread evenly from the profits obtained from the environment.

In Indonesia, the right to the environment is regulated in the Constitution and Legislation. In UUD 1945 (CONSTITUTION of 1945) Amendment 28H Article II, paragraph (1) states: "*Everyone has the right to live prosperous and inner, life and got a good environment and healthy, eligible health services*". Articles 5 and 8 of UU Number 23 of the Year 1997 (ACT No. 23 of the Year 1997) on Environmental Management, reads: "*Everyone has the same rights over the environment is good and healthy*". Not only that but UU Number 39 of the Year 1999 (ACT No. 39 of the Year 1999) on human rights

also expresses the same thing in Article 3 which reads, *"Everyone has the same rights over the environment is good and healthy"*.

## 3. Materials and Methods

The data comes from the perpetrators of the attempt that could potentially cause food waste that is hotels and restaurants located in Indonesia. The hotels and restaurants in this research are based in Jakarta, Depok, Surakarta, Surabaya, and Yogyakarta in Indonesia. The determination of the sample was done with snowball sampling and respondents are people who know in detail the process of the management of food waste in the private sector and supported also by related parties process the onset of food waste.

The total sample was 110 resource persons with a period of March 2023-April 2023. The technique of data collection was done through a structured interview by preparing guidelines for an interview, with a duration of time the interview was 20-30 minutes against the experts or informant. Interview guidelines include the identity of informant, in the management of food waste it does represent the private sector or public officials.

Further policies are being applied in the prevention efforts of food waste, and policies are applied with food waste. Food waste in the fields of hospitality and restaurants consists of excess food (or food that is still worthy to be eaten) and leftovers, policies are being applied in the management of food waste. Next is already partnering with third parties as excess food Managers as well as the rest of the food as a breeder.

The next session was the question about the policies set by related government management of food waste. They are also asked the question of how the supervision of related government management of food waste.

## 4. Result

Source food waste (FW) in the literature, according to the European Commission (2014), has been classified into three categories: (i) loss of food: food products lost during this phase production; (ii) the inevitable leftovers: refers to a food product that is lost during this phase of consumption (banana peels, fruit, etc.) as well as; (iii) the rest of the food that could have been avoided: the product can be eaten, but lost during the phase of consumption. On each phase of the food supply chain[17].

Food waste in the management of the hotel is composed of two groups, namely food remnants and excess food. The rest of the food is food that is already taken by a consumer and already eaten but not depleted resulting in the rest of the food on the plate. Next up is the excess food is food that's been read from the hotel management to be enjoyed, but on this excess food was moved onto his plate, so that the consumer is eligible for consumption.

Table 1: The management of excess food at the Hotel Indonesia.

| Type of Food | The management of more food and leftovers | | | | | |
|---|---|---|---|---|---|---|
| | Food the rest | | | | | |
| | | Food excess | Disposed | Given to employ-ees/people about | Processed again | Fodder |
| Staple | 18% | 14% | 83% | - | 17% | - |
| Vegetables | 23% | 41% | 83% | 17% | - | - |
| Side Dish | 11% | 13% | 50% | 33% | 17% | |
| Fruit and Salad | 14% | 14% | 100% | - | - | - |
| Snack | 5% | 11% | 100% | | | |
| Percentage | 12% | 19% | 84% | 9% | 7% | - |

Source: Primary Data, 2022

Based on the results of the interview on completion of the number of daily menu is based on a percentage of room occupancy rate i.e. amounting to 60% of the number of guests. The menu prepared for the morning breakfast menu, and based on data from the diagram above, it appears that the menu served from some hotels consists of staple foods including all types of carbohydrates such as rice, porridge, bread, potatoes, and like derived from carbohydrates. Furthermore, various vegetables are processed vegetable dishes such as assorted vegetables, soup, curry, cap cay, tom yam, and so on. A variety of side dishes is a menu of side dishes in the form of various preparations of meat, egg, tofu, and tempe. Cut fruit and salads are all types of fruit presented, as well as fruit salad, and the last is a snack that consists of snacks either wet or dry that presents a variety of snacks typical of each area.

From several presentations of food there are leftovers is 12% from a menu prepared by the hotel. As for the treatment of leftovers, it is to be removed entirely for final trash disposal. While the mean of more food at the hotel by 19% of food provided. The more food, the more 84% directly disposed of the trash can. Several 9% of excess food is

given to employees and 7% more food the right to be cultivated again if still worth it. As long as there is no more food that goes to other forms, like forage.

Hotels are there in Indonesia also have a policy of allocating excess food to be given to the more needy or management of excess food, which is worth to other. Excess food is given to people who need such as homeless scavengers, and beggars, although numbers are still below 9%

Based on the above description management of the food in the hotel is done by processing the cuisine of 60% of the total residential multiplied by two, 40% is used for the backup. If the food that has been processed has been exhausted then, foods that are reserved can be processed. If the food is processed and has sufficient food reserves will then be processed the next day. The excess food from the hotel was given to the local community and also employees. For a specific day such as excess food; and meeting is also given to the pedicab around the hotel and allowed to be consumed by employees. Although there is no written policy about this, but managers allow employees to consume excess food. Every Wednesday is nevertheless scheduled to set aside 5 packs of rice to give to people around the hotel at the suggestion of the manager. Meals are given to parents and pedicabs.

Excess food in a sample of the hotel was surveyed by the cafeteria employees and some was also distributed to the community. Some can be processed foods like rice and bread to be processed back to being fried rice or other food. Porridge and food he cannot be consumed go straight disposed of. Management of food waste in particular to the hotel was done by cooperating with other parties. Food waste that no longer can be processed will be used as food deer. Management of food waste is also monitored by the office for environment, to minimize food waste, including waste management of B3. Hotel in research but this is the object is restaurant research. Restaurants used to cover restaurant objects fast restaurants unprepared, and they prepared new orders when there was an order in accordance menu program.

Estimation of restaurant sector food than 9% This figure is smaller than food than a hotel at 12% Food in restaurant management excess is cast away to the dum, and 52% of food will be disposed of as excess garbage. Management second is the just recycle food some 40% and the least, the same 8 % given to employees.

Management of food and supplies at restaurants has been carried out with how to cook food that is simply ordered by the subscribers. Food any excess is feasible for consumption can also be distributed to partnering, giving it to an employee, and the

TABLE 2: Management food than a restaurant.

| Type of Food | Percentage of Excess Food | Management of Excess Food | | | |
|---|---|---|---|---|---|
| | | Disposed | Given to employees/people about | Process | Fodder |
| Staple Food | 18% | 50% | | 50% | - |
| Vegetables | 5% | 75% | 25% | | - |
| Side Dish | 5% | 30% | | 70% | - |
| Mean | 9% | 52% | 8% | 40% | - |

Source: Primary Data, 2022

surrounding society. Sometimes there was a restaurant of them have applied the food packages and prasmanan. With food packages on the great commission nor a buffet the process may only lead to minimalist eating in excess, but made it possible for minibus food waste.

## 5. Discussion

The amount of loss or wastage in each step in the food and food waste is, generally presented as (1) agricultural production, (2) handling and storage of postharvest, (3) processing and packaging, (4) distribution, and (5) consumption[18] The result show that the policy taken at a hotel or restaurant is an oral policy. The majority of hotels and restaurants do not yet have a written policy on the management of excess food. Yet the existence of a written policy governing the management of food waste is one of the gastronomic potentials of the emergence of food waste. food waste management policy should consider the diversity of characteristics in the food industry and food waste management strategies are used[19].

Prevention of food waste can be made by making a policy against the food industry to implement effective strategies to influence practices that cause food waste and ultimately help consumers reduce food waste[15] The food recovery hierarchy puts food waste reduction at the source and makes hoarding in landfills the most common option[16].

The incidence of food waste prevention policies can start with consumer education. Such education may be providing posters about eating sparingly and leaving no residual. If forced to be willing to wrap the food ordered to take home[20] When a visitor asked to take the rest of the food was considered shameful for violating social norms. But

it will be different when the waiters orally ask visitors to take leftovers, which certainly can minimalist to food waste at hotels or restaurants (5), requires the cooperation and development of joint perpetrators of the food chain (consumers and authorities)[21].

After the education, using consumer from food in the redistribution of the recovery hierarchy optimacy to people and sent to fodder. It is redistribution can be grouped into two excess food and food plates. Food remains trashed when a guest at a buffet may have taken too much food that is not got him finished[22], this kind of garbage can be distributed on farms as forage. In terms of food excess can be distributed to persons in need like a beggar, homeless, and poor.

For preventive efforts food waste accounts for about 20% to 30% of the total impact of private consumption [23] in priority practices innovative waste management as well as a strategic approach against the challenge management ability complex from sustainable approach to food service industry waste management, approach of constructivism social of experiences [24].

Japan from 2008 until 2015 introduced a framework to evaluate the prevention and use of food waste used data on the food industry by applying the framework of analysis decomposition which classifies 5 (five) factors: waste prevention recycling, food recovery of heat, reduction in volume, and scale of the production was able to reduce the amount of food waste[19].

Any type of food waste at a global level requires immediate action to minimize its negative ecological and socioeconomic impacts. In an advanced state of the order, 20%-40 % of waste food is produced during the preparatory phase of manufacture of the supply chain and often administered by means that are not optimized leading to durable environmental impac [25].

Recycling and recovery appear in a hierarchy that can replace stockpiling waste on end at landfills[26] Waste disposal practices improper produce environment[27] Research has blamed customers for their behavior that leads to extravagant food, literature, and more specific practices that analyze the dynamics in food daily food waste thing[28].

From time to time the global community is concerned about food security and environmental impact, depletion of resources, and greenhouse gas emissions caused by waste, food waste food takes place in all stages of food supply chains, designing waste prevention strategies needed food connect the originator, with a series of factors policy business, and an option a retailer [29] and retail store[30].

## 6. Conclusion

Food waste management practices in the private sector on hotels and restaurants in Indonesia, retrieved data that does not yet exist of a written policy of the private sector resulting in policies that are taken by managers of hotels and restaurants were still varied, i.e., giving excess food to needy and rest of food given to cattle businessmen to eat livestock. The rest is to remove excess food or leftovers from landfills. Yet the existence of policy in the public sector also allows the businessmen in the sector of hotels or restaurants can freely take policies without fear of the existence of inadequate sanctions determined by the government.

That required policy in the sector public that will eventually be used as a reference for policies in the private sector in the management of food waste. The concept of policy is to adopt food and drink hierarchy material that minimizes food waste rising to landfills.

## References

[1] Filimonau V, De Coteau DA. Food waste management in hospitality operations: A critical review. Tourism Management. 2019;71[October 2018]:234–245. Available from: https://doi.org/10.1016/j.tourman.2018.10.009

[2] Kucbel, M., Raclavská, H., Růžičková, J., Švédová, B., Sassmanová, V., Drozdová, J., Juchelková D. Properties of composts from household food waste produced in automatic composters. Journal of Environmental Management. 2019;657–666. https://doi.org/10.1016/j.jenvman.2019.02.018

[3] Tsang, Y. F., Kumar, V., Samadar, P., Yang, Y., Lee, J., Song, H., Jae Y. Production of bioplastic through food waste valorization. Environment International. 2019;625–44. https://doi.org/10.1016/j.envint.2019.03.076

[4] Corrado S, Caldeira C, Eriksson M, Hanssen OJ, Hauser HE, van Holsteijn F, et al. Food waste accounting methodologies: Challenges, opportunities, and further advancements. Global Food Security. 2019;20:93–100. Available from: https://doi.org/10.1016/j.gfs.2019.01.002

[5] Stöckli, S., Niklaus, E., & Dorn M. Resources, Conservation & Recycling Call for testing interventions to prevent consumer food waste. Resources, Conservation & Recycling,. 2018;445–62. https://doi.org/10.1016/j.resconrec.2018.03.029

[6] Parfitt J, Barthel M, MacNaughton S. Food waste within food supply chains: Quantification and potential for change to 2050. Philosophical Transactions of the Royal Society B: Biological Sciences. 2015;365[1554]:3065–81.

https://doi.org/10.1098/rstb.2010.0126.

[7] Hebrok, M., & Heidenstrøm N. Contextualizing food waste prevention-decisive moments within everyday practices. Journal of Cleaner Production. 2018; https://doi.org/10.1016/j.jclepro.2018.11.141.

[8] Elkhalifa S, Al-Ansari T, , Hamish R. Mackey GM. Food waste to biochars through pyrolysis: A review. The journal Resources, Conservation & Recycling. 2019; https://doi.org/10.1016/j.resconrec.2019.01.024.

[9] Yeo, J., Oh, J., Cheung, H. H. L., Lee, P. K. H., & Kyoungjin A. Smart Food Waste Recycling Bin [ S-FRB ] to turn food waste into green energy resources. Journal of Environmental Management. 2019;290–6. https://doi.org/10.1016/j.jenvman.2018.12.088

[10] Sindhu, R., Gnansounou, E., Rebello, S., Binod, P., Varjani, S., Shekhar, I., Pandey A. Conversion of food and kitchen waste to value-added products. Journal of Environmental Management. 2019; https://doi.org/10.1016/j.jenvman.2019.02.053

[11] Shabanali, H., Aramyan, L. H., Sijtsema, S. J., & Alambaigi A. Resources, Conservation & Recycling Determinants of household food waste behavior in Tehran city : A structural model. Resources, Conservation & Recycling. 2019;154–66. https://doi.org/10.1016/j.resconrec.2018.12.033.

[12] Stenmarck a. Estimates of European food waste levels. Available from: https://www.researchgate.net/publication/301216380_Estimates_of_European_food_waste_levels. DOI:10.13140/RG2.1.4658.4721.

[13] Slorach PC, Jeswani HK, Cuéllar-Franca R, Azapagic A. Environmental sustainability of anaerobic digestion of household food waste. Journal of Environmental Management. 2019;236[ January]:798–814. Available from: https://doi.org/10.1016/j.jenvman.2019.02.001

[14] Fernandez Vicenc FT. Towards more sustainable food systems. Addressing food waste at school canteens. Appetite. 2018; https://doi.org/10.1016/j.appet.2018.06.022

[15] Romani, Simona; Grappi, Silvia; Bagozzi, Richard P. and Barone AM. Domestic food practices: A study of food management behaviors and the role of food preparation planning in reducing waste. Appetite. 2018 ; 3[2] : 215–27. https://doi.org/10.1016/j.appet.2017.11.093

[16] Papargyropoulou E, Lozano R, K. Steinberger J, Wright N, Ujang Z Bin. The food waste hierarchy as a framework for the management of food surplus and food waste. Journal of Cleaner Production. 2015;76:106–15. https://doi.org/10.1016/j.jclepro.2014.04.020

[17] Bao, N., Thi, D., Kumar, G., & Lin C. An overview of food waste management in developing countries : Current status and future perspective. Journal of Environmental Management. 2015;220–9. https://doi.org/10.1016/j.jenvman.2015.04.022

[18] Salihoglu, G., Salihoglu, N. K., Ucaroglu, S., & Banar M. Food loss and waste management in Turkey. Bioresource Technology. 2017; https://doi.org/10.1016/j.biortech.2017.06.083

[19] Fujii, H., & Kondo Y. Decomposition analysis of food waste management with explicit consideration of priority of alternative management options and its application to the Japanese food industry from 2008 to 2015. Journal of Cleaner Production. 2018. https://doi.org/10.1016/j.jclepro.2018.03.241

[20] Hamerman, E. J., Rudell, F., & Martins CM. Factors that predict taking restaurant leftovers: Strategies for reducing food waste. Journal of Consumer Behaviour. 2018;17[1]:94–104. https://doi.org/10.1002/cb.1700

[21] Kasza, G., Szabó-bódi, B., Lakner, Z., & Izsó T. Balancing the desire to decrease food waste with requirements of food safety. Trends in Food Science & Technology. 2019;74–6. https://doi.org/10.1016/j.tifs.2018.07.019

[22] Pirani, S. I., & Arafat HA. Reduction of food waste generation in the hospitality industry. Journal of Cleaner Production. 2015; https://doi.org/10.1016/j.jclepro.2015.07.146

[23] Scherhaufer, S., Moates, G., Hartikainen, H., Waldron, K., & Obersteiner G. Environmental impacts of food waste in Europe. Waste Management. :98–113. https://doi.org/10.1016/j.wasman.2018.04.038

[24] Martin-rios, C., Demen-meier, C., Gössling, S., & Cornuz C. Food waste management innovations in the food service industry. Waste Management. 2018;196–206. https://doi.org/10.1016/j.wasman.2018.07.033

[25] Garcia-Garcia G, Woolley E, Rahimifard S. Optimising Industrial Food Waste Management. Procedia Manufacturing. 2017;8[October 2016]:432–9. Available from: http://dx.doi.org/10.1016/j.promfg.2017.02.055

[26] Cristóbal J, Castellani V, Manfredi S, Sala S. Prioritizing and optimizing sustainable measures for food waste prevention and management. Waste Management. 2018;72:3–16. https://doi.org/10.1016/j.wasman.2017.11.007

[27] Nayak, A., & Bhushan B. An overview of the recent trends in the waste valorization techniques for food wastes. Journal of Environmental Management. :352–70. https://doi.org/10.1016/j.jenvman.2018.12.041

[28] Revilla, B. P., & Salet W. The social meaning and function of household food rituals in preventing food waste. Journal of Cleaner Production. 2018;320–32. https://doi.org/10.1016/j.jclepro.2018.06.038

[29] Schanes, K., Dobernig, K., & Gözet B. Food waste matters - A systematic review of household food waste practices and their policy implications. Journal of Cleaner Production. 2018;182:978–91. https://doi.org/10.1016/j.jclepro.2018.02.030

[30] Teller, C., Holweg, C., Reiner, G., Kotzab, H., & Reiner G. Retail store operations and food waste. Journal of Cleaner Production. 2018;185:981–97. https://doi.org/10.1016/j.jclepro.2018.02.280