

12 food waste pdf

by - -

Submission date: 17-Mar-2023 07:46PM (UTC-0500)

Submission ID: 2039723291

File name: 12.food_waste.pdf (470.74K)

Word count: 2984

Character count: 15940

PAPER · OPEN ACCESS

2

Food waste handling perception in Indonesia: communicating the sustainability of Food and environment

To cite this article: Daniel Susilo *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **892** 012109

View the [article online](#) for updates and enhancements.

You may also like

10

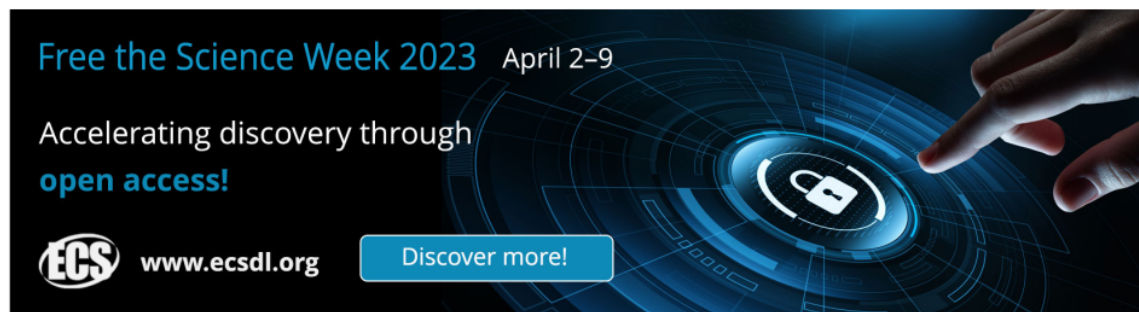
[Implementation of new concepts in waste management in tourist metropolitan areas](#)
I. Burlakovs, Y. Jani, M. Kripsalu *et al.*

7

[Overview on Sustainability Criteria for Food Waste Bioproducts Management](#)
Mohd Ikmal Haqem Hassan, Aeslina Abdul Kadir, Lidya Najihah Nasarullah *et al.*


4

[Green Campaign of Food Waste Handling: Communicating the Food Sustainability](#)
Daniel Susilo, Julian M. S. Rosario, Maria Elizabeth T. Navarro *et al.*



Free the Science Week 2023 April 2-9

Accelerating discovery through open access!

 www.ecsd.org [Discover more!](#)

The banner features a dark blue background with a futuristic, glowing blue interface. A hand is shown interacting with a circular element that contains a white padlock icon, symbolizing open access. The text is in white and light blue, providing information about the event and a call to action.

2 Food waste handling perception in Indonesia: communicating the sustainability of Food and environment

Daniel Susilo^{1*}, Myra V. de Leon², Teguh Dwi Putranto³, Fadjar Kurnia Hartati⁴

¹Graduate School of Strategic Communication, Universitas Multimedia Nusantara, Jakarta, Indonesia

²RVR College of Business, De La Salle University, Manila, Philippines

³Social Sciences Department, Airlangga University, Surabaya, Indonesia

⁴Department of Food Technology, Dr. Soetomo University, Surabaya, Indonesia

*daniel.susilo@umn.ac.id

Abstract

5 Every week, Indonesia discards approximately 10 million pieces of bread, cakes, and cookies, equating to 292,000 tons of CO₂ emissions similar to Indonesia's annual CO₂ emissions. Due to a lack of resources and infrastructure, most impoverished countries rely on antiquated technologies such as anaerobic digestion (AD) to handle food waste. Bakery trash is a biologically formed organic waste that poses a serious threat to public health and the environment, including natural ecosystem contamination. The goal of this study is to find out how much effort Indonesians put into garbage management. How do they spread the word about leftovers through the media? How do they know about waste, particularly bread waste? As well as community-wide corrective steps to protect the environment from domestic food waste management. This study employs a quantitative approach. In order to send 100 questionnaires to persons in Indonesia, purposive sampling was used. Surveys are carried out using Google forms, which require a valid Google email address in order to ensure that each person only takes the survey once. The study's conclusion is that food waste management efforts among Indonesians are hampered by the public's lack of understanding of food waste management and disposal information in the media. The research sample understands the process of recycling food into pet food when it becomes garbage, according to their perceptions about the end process of food. In terms of food waste awareness, the majority of the participants in this study were aware that food waste is disposed of in landfills rather than being recycled.

Introduction

Staling and microbiological deterioration of bread are the two primary reasons for the dangerously increasing contribution of bakery items to global food waste [1], which is occurring in every country on the globe (11 percent of the total amount of baked goods in Indonesia in 2015)[2]. According to general definitions, the maturation process begins immediately after baking. Phase transitions occur when heat energy is removed, changing the bread's texture. However, amylose, the second primary macromolecule accounting for the starch percentage of flour, crystalizes over a longer length of time.



1 Content from this work may be used under the terms of the Creative Commons Attribution 3.0 licence. Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

Aside from starch degradation and water migration, evaporation of volatile components also contributes to a change in customer perception within the first few days of storage. Textural analysis may be used to determine the physicochemical changes that occur during the bread's storage time, as well. In addition to sensory assessments, uniaxial compression testing (per AACCI method 74-10A) and dynamic mechanical analysis can be used to determine transformations.

This type of waste is completely preventable because bread contains no inedible portion. A thorough understanding of waste generation in the bakery sector, from the manufacturer to the customer or production to distribution, is essential to reduce bread wastage and enhance process economics as well as sustainability. Improvements in this area might lead to more effective waste reduction and prevention strategies.

Indonesian waste away around 10 million pieces of bread, cake, cookies every week, amounting to 292 000 tons of CO₂ equivalent emissions per year Indonesia. When it comes to managing food wastes, most poor nations rely on outdated processes such as anaerobic digestion (AD) due to inadequate resources and infrastructure. Since bread waste is a biologically-derived organic waste, it poses severe dangers to public health and the environment, including contamination of natural ecosystems. It may be possible to build up the economy by understanding the process of waste creation and comprehensive methods to dealing with these wastes at various points in the supply chain, either via decreasing wastage or recycling trash into useful goods.

This paper explore the effort to manage the bread waste among Indonesian. How they got the information about food waste among the media. How they aware with the food waste especially bread waste? And also the corrective action from the people to save the nature toward dealing with food waste in house hold.

Methods

To characterize how individuals deal with food waste, a quantitative method was used [3], [4]. Food waste, in particular bread, is a topic that people look for information on on the internet. People's awareness of food waste is also a concern. Purposive sampling was used to deliver 100 questionnaires to people in Indonesia. The survey was conducted using a Google form that required a valid Google email address in order to ensure that each individual only completed the survey once. A connection to a specific audience is used if the authors want to ensure a balanced distribution of samples across Indonesia's many provinces [5], [6]. The questionnaire distribution held on April 2018 and analysed using simple descriptive data. The data presented here are preliminary data for describing how Indonesian dealing with food waste especially bread.

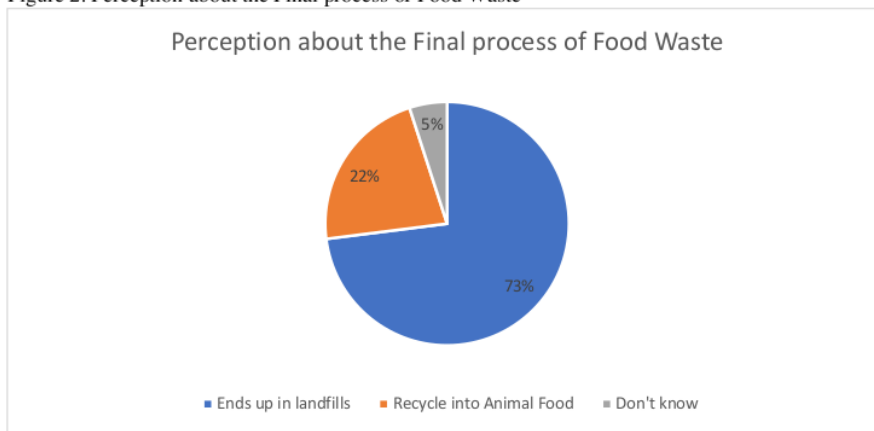
Results

Based on the results, the authors found most of the respondents (62%) never aware with their food waste (See Figure 1). Meanwhile, about 20% of respondents already aware with the food waste, but choose to be ignore with the dangerousity. It means only 18% respondents who aware with the food waste problem and take several action to handle it. Most of the developing countries' garbage ends up in landfills owing of the inadequate resources and infrastructure [7]. The respondent perception about their food waste in Indonesia also showed the same fact into developing countries. Most of the respondent thought the food waste in Indonesia, especially bread ends up in landfills (See Figure 2).

Figure 1. Awareness of the Food Waste Dangerousity

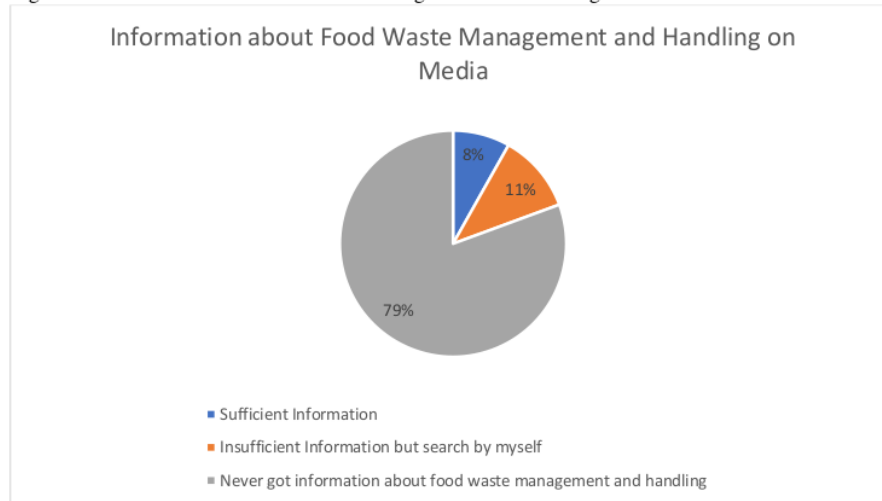


Figure 2. Perception about the Final process of Food Waste



Most of the respondents never got a sufficient information from the media about Food waste handling such as bread scrumb or leftover bread (see Figure 3). This degree is showing the fault of media to discuss related issue with environment, waste handling and sustainability. Since the Hypodermic needle model hypothesis suggests that communication is received and accepted with the full understanding of the sender[8], [9]. The approach was first created in the 1930s by behaviorism, but big data analytics-based mass customization has revived it for a new generation. Related with the Hypodermic needle model, the media have strong power to generate issue and concern with food waste and sustainability.

Figure 3. Information about Food Waste Management and Handling on Media



Discussion and Conclusion

Awareness of the Food Waste Dangerousity

The results of data collection that have been carried out show that related to awareness of food waste, especially bread waste, the sample in the study stated that "aware and take action" has a percentage of 18%, "aware of ignorance" is 20%, and those who are "not aware of it" is 62%. So related to awareness of food waste, especially bread waste, it is known that the sample is "not aware" of the dangers of food waste. Food waste awareness will almost surely have a negative impact on living things. For example, it could cause a variety of cancers, fetal abnormalities, premature births, or newborns born with low body weight.

Food waste that enters the Final Processing Site (TPA) and undergoes decay, will produce methane gas which causes the greenhouse effect. Greenhouse gases (GHG) contribute to climate change. Composting food waste can reduce the amount of GHG emissions released into the atmosphere. To produce food, many natural flora and fauna are destroyed due to land use. For example, land conversion activities or large-scale fishing. This can result in a decrease in flora and fauna and an impact on the decline in biodiversity. When food is wasted, it means that all the energy and water that has been used for growing, harvesting, transporting, and packaging is also wasted. Land that is used continuously for food production, if not treated, will experience a decrease in productivity and lose the ability to produce food. Farmers' welfare may suffer as a result of inefficient agricultural land utilization. This occurs as a result of changes in how agricultural land has been managed. It could also result in a shift in employment from the agricultural to non-agricultural sectors. It would add to the population if the old workforce (farmers) was unable to absorb them all.

Other than, food waste has proven to be extremely harmful to the environment, and is even one of the primary drivers of global warming. Many individuals still throw food out, and one of the most common reasons is that the food is no longer fit for ingestion or because they bought too much food and it became expired or stale. The amount of waste generated by residents in urban areas is enormous, and it is regarded to be a possible source of methane gas. Methane gas is one of the greenhouse gases (GHG) that can contribute to global warming by causing the greenhouse effect (Global Warming).

So that the awareness of every human being against hazardous food waste when left alone becomes important so that humans can become agents of change for the environment. By maintaining environmental sustainability and balance through awareness of the dangers of food waste, it will have

a positive impact on the balance of human life with one another. By becoming an agent of change, every human being can spread awareness to other humans in forming awareness of the importance of protecting the environment.

Perception about the Final process of Food Waste

The results obtained related to corrective actions from the community to save nature on the handling of food waste in the household, it was found that food waste "ends up in landfills" is 73%. Food waste "Recycle into animal food" is understood by the samples, which is 22%. "Don't know" food waste is recycled into what 5%. So the perception of handling food waste is dominated by recycling into animal food with a percentage of 73%.

Food waste pollution can be mitigated with proper waste management. Organic waste can also be used to generate compost or even transformed into energy through the Intermediate Treatment Facility provided waste management is adequate. Waste management at the source is required to reduce the waste problem. Garbage management, which encompasses waste reduction and handling, is a systematic, comprehensive, and long-term activity. In order to give economic benefits, be healthy for the community and safe for the environment, and influence people's behavior, waste management must be carried out in a comprehensive and integrated manner from upstream to downstream.

The community has not maximized the recycling of waste, especially food waste, making the waste processing process still a big obstacle. In general, people still have skepticism about waste sorting activities because people still see the separated waste will be collected back in trucks and garbage carts. Insufficient facilities and infrastructure eventually trigger new problems that make people indifferent to waste management. The professionalism in waste management that has been carried out by experts has made the community feel that the task of managing and recycling waste can only be carried out by experts, not individuals.

The lack of public understanding of trash recycling is at least somewhat mitigated by initiatives aimed at addressing food waste issues, such as waste avoidance and reduction. People can prepare food in the appropriate amount in their daily lives to avoid wasting food and reducing the risk of expired food. Before purchasing packaged food, people should verify the expiration date and consume it before that date. To avoid wasting food, save leftovers in the refrigerator for the following meal. However, there may be certain food remains that are inevitable and must be discarded. For recycling purposes, waste must be segregated by type. Separating sources is a crucial step. Through effective separation, recyclable food waste can be separated from non-recyclable waste, improving the quality of the compost as well as preventing damage to the composting equipment.

Information about Food Waste Management and Handling on Media

The results obtained by researchers on perceptions of information related to food management and handling in the media, it was found that "informants who felt sufficient" related to media information in food handling and handling were 8%. Meanwhile, "the information is not enough and they end up looking for themselves" by 11%. The sample who "never received information about the management and handling of food waste" from the media was 79%. So with regard to information related to the management and handling of food waste, the results showed that the sample had not received information from the media related to the management and handling of food waste.

Judging from the hypodermic needle theory which states that the media has very powerful power and the communicant is considered passive or does not know anything. This theory assumes that a communicator can fire such a magical communication to a defenseless (passive) audience. If it is possible between media and waste handling, it can be said that the media plays a major role in building the communicant's perception of handling waste. However, in reality there are still many people who have not received the influence of the media related to waste management, so that people also cannot be exposed to the media in order to handle waste. In fact, if the community is exposed to the handling of food waste from the media, it will certainly lead to exposure to the community and can have an

15

impact on the handling of food waste in the surrounding environment. That way the balance in our environment can be maintained and people get a much better quality of life.

The conclusion in this study is that food waste management efforts among the Indonesian people are that information about food in the media has not been widely reached by the public, because people do not understand much information from the media on the management and handling of food waste. Perceptions about the final process of food obtained that the research sample understands the process of recycling into pet food when food becomes waste. Regarding awareness of food waste, the sample in this study was dominated by awareness that food waste ends up in landfills without being recycled.

References

- [1] J. Fernández-Peláez, P. Guerra, C. Gallego, and M. Gomez, "Physical Properties of Flours Obtained from Wasted Bread Crusts and Crumbs," *Foods*, vol. 10, no. 2, p. 282, 2021.
- [2] D. Lemy, A. Rahardja, and C. Kilya, "Generation Z Awareness on Food Waste Issues (a Study in Tangerang, Indonesia)," *J. Bus. Hosp. Tour.*, vol. 6, no. 2, pp. 329–337, 2021.
- [3] S. Swastikawara, Y. F. Laturakhmi, and F. H. Oktaviani, "Intervensi Perilaku Sadar Bahaya Rokok Melalui Humor dan Rational Based Message Appeals," *J. Stud. Komun.*, vol. 2, no. 1, 2018.
- [4] M. V De Leon, "Factors influencing behavioural intention to use mobile banking among retail banking clients," *J. Stud. Komun.*, vol. 3, no. 2, pp. 118–137, 2019.
- [5] M. V De Leon, D. Susilo, T. D. Putranto, F. K. Hartati, and R. R. T. Santos, "Managing the uncertainty during COVID-19 pandemic: Communicating disaster and food industry sustainability," in *2nd International Conference Earth Science and Energy, ICESE 2020*, 2021, vol. 819, no. 1.
- [6] E. Hidayat and D. Susilo, "Refusing to Die: Programmatic Goods in the Fight against COVID-19 in Sampang Regency," *J. Polit.*, vol. 7, no. 1, pp. 47–74, 2021.
- [7] V. Narisetty *et al.*, "Recycling bread waste into chemical building blocks using a circular biorefining approach."
- [8] B. Lumley and M. O'Shaughnessey, "Media and Cultural Studies," in *Developing Contemporary Marxism*, 1985.
- [9] S. Littlejohn, *Theories of human communication*. 2012.

12 food waste pdf

ORIGINALITY REPORT

13%

SIMILARITY INDEX

6%

INTERNET SOURCES

2%

PUBLICATIONS

8%

STUDENT PAPERS

PRIMARY SOURCES

1	m.iopscience.iop.org Internet Source	2%
2	Submitted to California State University, Fresno Student Paper	2%
3	Moechammad Sarosa, Ratih Indri Hapsari, Supriatna Adhisuwignjo, Dwina Moentamaria et al. "Internet Of Things (IoT) Based Garbage Incinerator Monitoring System", 2022 International Conference on Electrical and Information Technology (IEIT), 2022 Publication	1%
4	www.scilit.net Internet Source	1%
5	Submitted to Monash University Student Paper	1%
6	www.widyatama.ac.id Internet Source	1%
7	fliphtml5.com Internet Source	1%

8	Submitted to De La Salle Santiago Zobel School Student Paper	1 %
9	Submitted to University of Bristol Student Paper	1 %
10	www.vbf.llu.lv Internet Source	1 %
11	Submitted to University of Glasgow Student Paper	1 %
12	Submitted to Sekolah Bogor Raya Student Paper	1 %
13	Daniel Susilo, Endik Hidayat, Rustono Farady Marta. "Village public innovations during COVID19 pandemic in rural areas: Phenomena in Madura, Indonesia", Cogent Social Sciences, 2021 Publication	<1 %
14	repository.unair.ac.id Internet Source	<1 %
15	Submitted to Sheffield Hallam University Student Paper	<1 %
16	Diena Mutiara Lemy, Audrey Rahardja, Cynthia Swastika Kilya. "Generation Z Awareness on Food Waste Issues (a Study in Tangerang, Indonesia)", Journal of Business on Hospitality and Tourism, 2021	<1 %

Publication

Exclude quotes Off

Exclude matches Off

Exclude bibliography On