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Addressing Constraints and Stategies in Introducing Food Waste Literacy for Indonesian School Children: A Mini Corpus Study

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Abstract

Food literacy and food waste have not received special attention from both the Indonesian government and society. However, considering that the country produces the second largest food waste in the world, ranking 100th at literacy and a stunting prevalence rate of 24.4% in 2021, the introduction and education of students about this issue is very important and urgent. This study aims to determine the urgency, constraints, and strategies for food literacy and food waste for children at school. This research uses a descriptive qualitative approach. Data collection through the study of research literature and relevant information. The results of the study show that the introduction of food literacy and food waste has a high level of urgency considering the environmental impact and future sustainability of Indonesia. Another supporting factor is that Indonesia's 2030 green growth policy can be used as a driver and basis for policy. Then, there are three obstacles to the success of this effort, teacher capacity, culture, policies, and alignments. This research also describes strategies that can be used, literacy school programs, use of interactive educational media, and collaboration with social media influencers and public figures.

INTRODUCTION

The food crisis is one of the world's big agendas in 2023, in addition to environmental, energy, and health issues (Zhang et al., 2022). Global warming, and geopolitical instability, especially the wars in Russia and Ukraine, have affected the world's food security and supply chains (Anna & Eric, 2022). Through the G20 Summit Conference, Indonesia called on the world to focus on global issues, one of which is food security. Indonesia is also committed to a green economy (Bappenas, 2018), a concept of low-emission-based economic growth as a concrete form of participation in the fight against global warming. This policy demonstrates the awareness of the Indonesian government that the environment determines future sustainability.

The costs Indonesia must incur because of environmental damage will reach 1000 trillion in 2021 (Ivanescu, 2022; Pirmana et al., 2021). One of the contributors to environmental damage is waste, which will reach 21.4 million tons in 2021 (Dihni, 2021). Of this amount, food waste will reach 39.63% in 2021 and 42.3% in 2022 (SIPSN, 2022). Then, according to the results of a study by Bappenas and several other institutions, Indonesia disposed of 23-48 million tons of food waste per year in the period of 2000-2019, or equivalent to 115-184 kilograms per capita per year. The resulting economic loss is IDR 213-551 trillion/year or about 4-5 percent of Indonesia's GDP per year. Socially, it causes a loss of energy, the same as a portion of food for 61-125 million people per year. This data shows the urgency of education to reduce food waste in Indonesia.

Indonesia is the second largest producer of food waste in the world after Saudi Arabia (Bisara, 2017). Ironically, 24.4% of children in Indonesia will experience stunting in 2021 (Rokom, 2021). Briefly, this data shows a contradiction between wasted food and the condition that many children in Indonesia are still malnourished and stunted. However, lack of understanding about the impact of leftover food, which results in large amounts of food waste, has contributed to the slow decline in stunting and malnutrition rates in Indonesia. This fact illustrates that the problem of food waste is not only in the environment but is more complex than that.

Besides the environmental impact, food waste is a behavior that needs to be changed. Appreciating food behavior and awareness of the negative impact of food waste can save many poor families. With the proper management of food consumption, a family can save expenses that can be used for other needs or savings. On a broader scale, an understanding of food waste will reduce poverty and maintain hope for the future of Indonesia.

The educational paradigm for waste management is still around sorting waste and reducing inorganic waste, especially plastic (Chair & Fahmi, 2022; Simanjuntak, 2022). While education on the behavior of leaving and wasting food is still seen from a cultural perspective, namely about ethics and unethical. Even though this problem has a real and complex impact on the sustainability of life. So, it is important to change this paradigm in society, especially in educational institutions. The Indonesian government's green growth policy can be used to develop an educational strategy for food waste management, including the behavior of leaving food.

In addition to the implementation level in the field, many studies or research on food waste in Indonesia have been conducted. Ong et al. (2018), (Soma, 2017), and (Susilo et al., 2021) photograph the condition of food waste in Indonesia and the Southeast Asian region. Then, (Lemy et al., 2021) researched Generation Z's awareness of food waste showing that 45.90% were still unaware of the impact of food waste. Then, (Soma, 2020), (Saputri et al., 2018), and (Amir et al., 2015) highlight the impact of food waste on various aspects of life. While research on the introduction of food waste literacy in Indonesia has not been found. So, the authors decided to research the importance of introducing food waste literacy, constraints, and strategies that schools can use in the educational process.

Food Literacy

Food literacy is a person's ability to understand and apply knowledge about healthy and nutritious food (Perry et al., 2017) and make the right decisions in selecting, preparing, and consuming food (Fingland et al., 2021). Food literacy is an important factor in maintaining health and preventing various diseases caused by unhealthy eating patterns (Begley et al., 2019).

To increase food literacy, one can do various things such as learning about nutrition and food nutrition, getting used to reading nutrition labels on food packages, choosing nutritious and healthy foods, and preparing healthily food. In addition, one can also acquire food literacy by participating in educational activities about food organized by various institutions or through information media such as the internet and books.

Food Waste

Food waste is unused or unsold food thrown away (van Herpen et al., 2019). This includes food that does not sell well in markets, food that does not meet the beauty standards set by traders, and food is thrown away by households and restaurants (Salemdeeb et al., 2017). Food waste is a serious problem because it greatly impacts the environment, economy, and health. At the global level, food waste contributes around 8% of greenhouse gas emissions (Scherhaufer et al., 2018), significantly contributing to climate change. In addition, food waste is also a source of water and soil pollution and causes inefficient use of resources because the disposal of food waste requires a lot of energy and resources.

To reduce food waste, several steps can be taken:

1. Buy food wiser: Try to buy food that will run out soon, buy food that is not too much, and buy food that does not meet the beauty standards set by the merchant.
2. Storing food properly: Knowing how to store food properly to extend its life, such as storing food at the right temperature and using the right plastic bags.
3. Cook wisely: Cook the right amount so no food is wasted and try to cook with ingredients that will soon run out.
4. Using food waste wisely: Use food waste as fertilizer or by managing it properly, such as by separating organic and non-organic waste.
5. Disseminate information: Share knowledge about food waste with others and disseminate information on how to reduce food waste in the environment where you live, at school, or work (Weisenberger, 2020).

The understanding of food waste is often confused with food loss. Food loss is food that is lost during the process of production, transportation, storage, or sale. This includes food that is spoiled,

spoiled, or contaminated during the process, as well as food that is not sold or thrown away because it does not meet the beauty standards set by the dealer.

Food loss is a serious problem because it causes inefficient use of resources and reduces food availability for needy people. According to data from the Food and Agriculture Organization of the United Nations (FAO), about 30% of the food produced in the world is lost or wasted each year (FAO, 2011).

To reduce food loss, several steps can be taken, such as:

1. Increase the efficiency of the production process: Look for ways to reduce food loss during the production process, such as by using better technology to process food and improve food safety.
2. Improving food safety: Looking for ways to reduce the risk of food loss during transport and storage, such as by using better technology to maintain food temperature and proper packaging.
3. Increase food sales: Look for ways to reduce the amount of food that goes unsold or is thrown away because it doesn't meet the beauty standards set by grocers, such as by increasing consumer awareness about foods that are not very pretty but still fit to eat.
4. Using food waste wisely: Use food waste as fertilizer or by managing it properly, such as by separating organic and non-organic waste.
5. Dissemination of information: Sharing knowledge about food loss with others and spreading information about how to reduce food loss in the environment where you live, school or office.

Food waste literacy is knowledge and understanding of the problem of food waste and ways to reduce and manage food waste more effectively. This includes understanding the various factors that lead to food waste, such as overproduction, lack of knowledge on managing food properly, and inefficient shopping practices (Mustamin et al., 2020).

To increase food waste literacy, several steps can be taken:

1. Recognizing the problem: Recognizing that food waste is a serious problem and realizing its enormous impact on the environment, the economy, and health.
2. Reducing food waste production: Learn how to purchase, store, and cook food more efficiently, thereby reducing the amount of food waste generated.
3. Manage food waste properly: Understand how to properly manage food waste, such as separating organic and non-organic waste, and using organic waste as fertilizer.
4. Disseminate information: Share knowledge about food waste with others and disseminate information on reducing food waste in your neighborhood, school, and office.

Using initiative: Finding and taking initiatives to reduce food waste in the neighborhood, school, or office, for example, by inviting other people to join the food waste reduction program.

METHOD

This research uses a qualitative descriptive approach (Sugiono, 2011). The data in this study were obtained through a literature review from various relevant sources. The author applies systematic steps to obtain data. First, the authors collect relevant research using the publish or perish application. The data taken from the Scopus indexer is limited from 2017-2022. The search results collected 200 research data on food waste. In the second step, the collected data is eliminated according to the needs. Finally, the writer analyzes in-depth articles and other sources that are relevant to the research topic

RESULT AND DISCUSSION

a. The Urgency of Introduction to Food Literacy and Food Waste

The introduction of food literacy, especially food waste, should be a priority like the other 6 basic literacy (literacy, numeracy, science, digital, finance, and culture & citizenship) (Ditpsd, 2021). Food literacy is an essential literacy that children must master because it involves the child's ability to recognize, understand, and manage food consumption. Food literacy will help children plan their consumption as needed to minimize leftover food. The next step is for children to manage the food they have. This ability includes storing food so that its nutritional content is maintained.

There are several benefits of introducing food waste literacy to children:

1. Teach children to appreciate food more. Awareness to appreciate food can grow children's empathy for environmental sustainability, help them understand the condition of the hungry poor, and participate in reducing the greenhouse effect.
2. Children understand that organic waste can produce biogas which contributes directly to the formation of the greenhouse effect.
3. Children understand the cycle of good food, starting from planning, consuming what is needed, storing it correctly, the obligation to spend or share food, and recycling leftover food.

The direction of the national policy related to the green economy and the Indonesian president's concern about food issues and environmental damage is the right momentum to introduce and teach food literacy, especially food waste, to school students.

Indonesia can follow the example of several countries, France, Norway, Denmark, China, Japan, and South Korea, leading sectors in the fight against food waste (Food Hero, 2019). These countries implement various policies to reduce the potential for food waste. In addition, they also

include food waste in the school curriculum, such as Plate Waste in School Lunch Programs in China (Liu et al., 2016).

This effort can also show the world of Indonesia's commitment to reducing food waste. This is also in line with the green growth proposal that Indonesia, the G20 presidency, put forward at the annual Conference in Bali in 2022. Other reinforcements are food literacy and food waste which are the implementation of the 3 SDGs principles, those are zero hunger, responsible consumption and reproduction, and climate action.

b. Constraints

It must be admitted that even though it has become a global issue, the terms food literacy and food waste are new things in Indonesia. In addition to the low level of understanding, other factors such as habits, social, cultural, and policy alignments are also obstacles to food literacy and food waste in Indonesia.

1. Lack of Teacher Literacy in Food, Nutrition, and Food Waste

   As a country with a literacy level in the 100th position in the world (Population, 2022), Indonesia still has a lot of homework to do to increase basic literacy in society. The national literacy movement (GKN) should be appreciated as a form of government commitment in which schools and teachers have a vital role. Teacher disparities and gaps in cities and 3T areas (underdeveloped, foremost, and outermost) where those who live in cities have higher literacy levels (Ramadhan & Nasionalita, 2020). So before introducing and teaching food waste literacy to students, the first and foremost step is to intervene with the teacher.

2. Cultural Barriers

   Almost all tribes in Indonesia have a culture of gathering and eating together both in the form of celebrations, in the form of thanksgiving to God and nature, and for various other purposes. Providing large quantities for residents has become a natural thing; even leaving food indicates that they have been served well. Behavior and paradigm are better than excess food are not implemented in the family. This habit is rooted in society and is passed down from generation to generation, especially for those with excess resources, both provided by the natural environment and adequate financial availability.

   This culture and paradigm of not appreciating food are one of the obstacles to introducing food literacy and food waste. The concept of food waste literacy contradicts the culture and habits that are rooted in society. However, by increasing public awareness about environmental damage and opening access to information, the culture of wasting food can be changed.

3. Policy Barriers and Partisanship

   Unlike the other 6 basic literacy, which already have an umbrella policy, food literacy and food waste are new things in Indonesia. As for introducing new waste literacy around building a culture of disposing of waste in trash bins, selecting organic and non-organic waste, and recycling non-organic waste. The policies and alignments of the central and local governments on this issue are very important as a reference for schools and other stakeholders. Policies derived by the government must be translated into strategies and concrete steps to implement them.

c. Strategies

Introducing and teaching food literacy and waste is a continuous job. The synergy between stakeholders is needed to formulate and create an environment that supports an anti-food waste culture and the ability to manage food properly. The following are strategies that schools can adopt to educate students about food literacy and food waste:

1. Literacy School Program

   Literacy school programs or branding can encourage school management and teachers to create physical and psychological environments that support food literacy and food waste efforts. This strategy can be translated into various policies such as regulations regarding waste, especially food waste; systematic education for teachers, students, and parents; and other related activities.

2. Interactive Education

   Interactive Education can be carried out by utilizing school areas, digital media, and other creative media. Education must touch on the 5W 1H area so that students understand food literacy and food waste altogether

   Study tours to locations related to food literacy and food waste, such as food banks; management of food waste in hotels, restaurants, supermarkets, and other places that have the potential to produce large amounts of food waste; and an integrated waste management site.

3. Collaborating with Influencers and Public Figures

   Generation Z and Alpha are digital native generations living in a digital society. Social media and influencers have an essential role in their social life. Followers of an influencer usually have strong bonds and will follow what their idol is doing. Therefore, cooperating with influencers and utilizing social media is the right strategy to enter the Z and Alpha generation world.

CONCLUSION

The fact that Indonesia is the second largest producer of food waste and ranks 100th in the world in terms of literacy is strong enough to start introducing and teaching food literacy and food

waste at schools. Another urgent condition is that the stunting prevalence rate in Indonesia in 2021 will still be at 24.4%. A large number contradicts the behavior of food waste and the fertility of nature. Early recognition will also form a generation that is aware and understands food management, including planning, selecting, managing, storing, processing leftover food suitable for consumption, and handling its waste.

However, creating a generation of Indonesians with good food literacy and food waste is not easy. There are various obstacles, such as the teacher's literacy level, the culture of eating in excessive quantities, and the absence of policies and the alignment of stakeholders such as the government, the education office, and school management. These obstacles must be resolved immediately in response to Indonesia's green growth policies and to create a generation that values food and the environment more. Then, in introducing food literacy and food waste, there are several strategies, literacy school programs, interactive education, field studies to places or environments that support learning food waste literacy and inviting influencers and public figures in this campaign.

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