Food Security Program: Reducing Food Waste and Improving Food Access for Vulnerable Communities in Medan City

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ABSTRACT. *The Aksata Pangan program aims to reduce food waste by rescuing surplus food from restaurants, hotels, and bakeries that is still safe for consumption, and then distributing it to vulnerable communities in Medan City, such as orphanages and community centers. The program involves collaboration with the private sector and promotes public awareness of the importance of reducing food waste. During implementation, more than 500 kilograms of food were saved and distributed, providing direct benefits to over 10 orphanages and community centers. A social impact evaluation was conducted through observations, interviews, and questionnaires, which showed that the program succeeded in increasing access to food for people in need and raising awareness about more efficient food management. The results of this program indicate that collaboration between the private sector and non-profit organizations has great potential to reduce food waste and improve social welfare. This program is also expected to serve as a model for sustainable, community-based food management in other regions.*
Keywords: Food Security, Food Waste, Food Distribution, Private Sector, Community Empowerment, Food Sustainability.

INTRODUCTION

Food waste is a major global issue, with approximately 19% of food produced worldwide being discarded in the retail, food service, and household sectors (Hoogeveen, 2019). In households specifically, around

60% of total annual food waste results from domestic consumption (Slorach et al., 2020). This contributes to greenhouse gas emissions, exacerbates food inequality, and leads to significant economic losses (Song et al., 2022). In the UK, for instance, 41% of food is wasted due to ignorance or confusion over date labels, which often causes consumers to discard food even when it is still safe to eat (Llagas et al., 2025).

Approximately 50% of food waste in developed countries occurs at the household level, with Australia serving as an example, where 30% of the food produced is discarded. This contributes to significant economic losses and environmental impacts (Haque et al., 2022). Interventions such as education and visual reminders within households have been shown to be effective in reducing food waste, with some studies demonstrating that reminders, such as bin stickers, can significantly alter food management behavior (Jobson et al., 2025).

Approximately one-fifth of the world's food supply is wasted each year, with 60% of this waste originating from households (Khatun & Hossain, 2024). This food waste has a significant impact on economic losses and environmental damage, contributing to greenhouse gas emissions (Seberini, 2020). According to UNEP, reducing food waste can help address food inequality and support the Sustainable Development Goal of halving food waste by 2030 (Silayo et al., 2025).

Globally, approximately 1.92 billion tons of food are wasted annually, resulting in an economic loss of over 1 trillion USD (Kolawole et al., 2024). This food waste not only leads to economic losses but also has a significant environmental impact, contributing to greenhouse gas emissions of 9.3 GtCO2(Gage et al., 2024). Additionally, food waste wastes natural resources used in food production, including water, land, energy, and labor (Skawińska & Zalewski, 2022). Data indicates that households are responsible for about 65% of all food waste, which accounts for approximately 11% of the world's total food production (Amicarelli & Bux, 2021). Given the growing urgency for the sustainability of the global food system, reducing food waste becomes a critical strategy to ensure social, economic, and environmental sustainability, especially in the context of an increasingly complex food crisis (Nguyen et al., 2025).

It is estimated that approximately one-third of the food produced globally for human consumption is lost or wasted each year (Chen et al., 2020). The FAO estimates that this amounts to around 1.3 billion tons of food wasted annually (Pandey, 2021). In this context, food waste occurs not only in households but also at the production, distribution, and

consumption stages across various sectors, including restaurants, hotels, and markets (de los Mozos et al., 2020). This waste contributes to inequalities in food distribution, with some parts of the population experiencing hunger while abundant food is discarded (Durán-Sandoval et al., 2023). Therefore, addressing food waste while ensuring that surplus food is redistributed to those in need has become a critical global issue (Landells et al., 2025).

Sigala's et al., (2025) research shows that food waste rates can reach 50-90% of the total food produced, which has significant economic and environmental costs. In this context, the food sector faces major challenges in reducing waste, despite various interventions aimed at addressing this issue, such as the use of waste tracking devices, which have been shown to reduce food waste by up to 50% in some cases. Global food waste accounts for one-third of the total food produced for human consumption, with the majority of wastage occurring in households. Key factors contributing to this waste include consumer behavior in shopping planning and food storage. Several studies have shown that changes in consumer behavior, such as reducing over-purchasing and increasing awareness of food waste, can significantly reduce wastage (Werkman et al., 2025).

Food waste in various sectors, such as restaurants, hotels, and bakeries, is a major issue in Indonesia, particularly in Medan City. At the same time, many underprivileged communities struggle to access food that is safe for consumption. The problem addressed in this initiative is how to reduce food waste while ensuring that surplus food that is still suitable for consumption can be redistributed to those in need. The Food Heroes program aims to rescue surplus food from various partners, including restaurants, bakeries, and hotels, and distribute it to Frontline Organizations (FLOs), such as orphanages and community centers. The main objective of the program is to reduce food waste while improving food access for vulnerable communities in Medan City. Additionally, it seeks to raise public awareness about the importance of reducing food waste and sharing with others.

METHOD

The Aksata Pangan program was implemented in Medan City, involving collaboration between various private sector partners, such as restaurants, hotels, and bakeries, to rescue surplus food that is still safe for consumption. The rescued food is then distributed to vulnerable communities, such as orphanages and community centers, in the region. The collection and distribution process is

carried out with strict coordination to ensure that the quality of the food remains safe and fit for consumption. Additionally, the program includes an educational campaign to raise public awareness about the importance of food waste reduction and sustainability.

Program evaluation was conducted through direct observation of the food distribution process and interviews with beneficiaries to assess the social impact. The data collected was analyzed descriptively to measure the effectiveness of the program in reducing food waste and providing food access to those in need. Feedback from beneficiaries and partners was also gathered to evaluate challenges and improve future program implementation. The program aims not only to reduce food waste but also to empower communities through more equitable food distribution.

RESULTS AND DISCUSSION

The Aksata Pangan program successfully collected more than 500 kilograms of food rescued from partners such as restaurants, hotels, and bakeries in Medan City. This food was then distributed to more than 10 orphanages and community centers spread across various areas of Medan City. The food distributed consisted of a variety of foodstuffs, including ready-to-eat meals, fruits, cakes, and breads. This program not only provides benefits to communities in need but also helps reduce food waste, which would have otherwise been discarded.

The social impact evaluation was conducted through interviews, direct field observation, and questionnaires distributed to beneficiaries. The results of the interviews revealed that the beneficiary communities greatly appreciated the food distribution, especially those living in orphanages and community centers. Most respondents reported that the food received was highly nutritious and beneficial for the children and teenagers in their care. Additionally, the program raised new awareness among the beneficiaries about the importance of better food management and sharing food with others.

The results obtained from the Aksata Pangan program demonstrate that food bank activities have a significant impact on local economic empowerment and food access for vulnerable communities. Food waste in the restaurant and hotel sectors in Medan City was reduced by the program, which also contributed to minimizing the economic losses arising from such waste. Additionally, the results highlight that collaboration with private sector partners is crucial to the program's success, as it involves stakeholders who possess surplus food that can be redirected in ways that benefit the community.

From a social perspective, the program illustrates that community-based food distribution can strengthen relationships within communities, while also raising awareness about food diversity and the importance of sharing. The success of food distribution demonstrates that a collaborative approach between the private sector and non-profit organizations can be an effective model for addressing food waste in Indonesia. By expanding the program to additional areas, it is expected to have a broader positive impact on reducing food waste and improving social welfare.

Bittner et al., (2025) findings are relevant to the results of the previous discussion, as they indicate that socio-economic factors, such as students' living conditions and lifestyle, can influence food waste behavior. In this context, your discussion on college students' food waste behavior could be enriched by emphasizing the importance of developing awareness and education campaigns tailored to their demographic context to encourage more sustainable food management habits. Malefors et al., (2025) research reveals that approximately one-third of food produced globally is wasted, particularly at the consumer level. This significant food waste has serious economic, environmental, and social consequences, including contributions to greenhouse gas emissions and environmental damage. A focus on household food waste suggests that much of this wastage is avoidable, especially among student households and similar demographic groups. These findings underscore the importance of understanding consumer behavior, including sociodemographic factors, to effectively reduce food waste.

Krah et al., (2025) research is also relevant to previous findings that identified several key factors influencing overconsumption-related food waste, also known as Metabolic Food Waste (MFW). Overweight and obese individuals were found to generate higher volumes of food waste compared to individuals of normal weight. Some factors contributing to high MFW include impulsive shopping behavior, frequent shopping, and unbalanced diets, such as the consumption of high-calorie foods (e.g., red meat, sweets, and potatoes). These findings underscore the link between overconsumption, energy imbalance, and the environmental impact of unmeasured food waste. Additionally, gender and age factors were found to influence MFW rates, with men and younger age groups (25-34 years) tending to generate higher food waste.

Cisse et al., (2025) findings are highly relevant to the discussion of the Aksata Pangan program, which also focuses on the collection and distribution of food that is still safe for consumption to communities in need,

while raising public awareness about reducing food waste. This program aligns with the approach suggested in the article, where improved waste management strategies can reduce negative environmental impacts and enhance community welfare. The results of Wu et al., (2025) research show that, similar to the Aksata Pangan program, the use of smart sensor technology in food management can minimize food waste, especially when combined with a real-time, data-driven approach that considers the environmental conditions of food storage. This aligns with efforts to reduce food waste through a more efficient approach to the distribution and management of food that is still safe for consumption.

The Aksata Pangan program has significant implications, not only in reducing food waste but also in empowering the local economy. By involving private sector partners such as restaurants, hotels, and bakeries to rescue food that is still safe for consumption, the program has successfully reduced food waste in these sectors. The social implication of this program is the increased awareness within the community regarding the importance of food sharing and more efficient food management. Additionally, the program strengthens relationships between communities by distributing food to orphanages and community centers, which has a direct impact on improving the quality of life for vulnerable communities. In the long term, the success of this program is expected to serve as a model for more efficient food management in other regions, expanding its positive impact on reducing food waste and increasing equitable access to food.

CONCLUSION

The Aksata Pangan program has had a significant positive impact on reducing food waste and increasing access to food for those in need, particularly in Medan City. Through collaboration with the private sector and efficient management, the program not only reduces food waste but also empowers local communities and raises awareness of the importance of sustainable food management. The success of this program demonstrates that, with a community-based approach and private sector partnerships, food waste can be minimized while providing substantial social benefits.

For similar future initiatives, it is advisable to expand the program's reach, strengthen collaboration with additional private sector partners, and integrate technology into the food management and distribution processes. In this way, the positive impact of the program can be magnified and sustained, benefiting a larger number of people.

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