



Policy Brief No. 26

Scaling Up Food Loss and Waste Reduction Programs in Indonesia

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Key Messages

- Securing national regulation(s) on food loss and waste (FLW) is essential for the effective, comprehensive, and unified management and policy implementation of FLW, ensuring standards are consistent countrywide and local initiatives and targets are aligned with national waste reduction goals.
- Providing government incentives, e.g. local incentive funds (*Dana Insentif Daerah*), to FLW reduction initiatives can boost food rescue programs and encourage collaboration with development partners.
- Coordinated efforts (e.g. task forces) among government, businesses, NGOs, and other development partners are required to align interests and promote sustainable, impactful practices.
- FLW reduction strategy must be incorporated in the school meal program (MBG) policy and guidelines.



National and Local Policies on Food Loss and Waste in Indonesia

As the population grows, the demand for food increases. Food Loss and Waste (FLW), whereby edible food ends up discarded, is a growing problem linked to food insecurity. Around 31% of all food produced worldwide is wasted or lost – 14% during production and distribution, and 17% in homes, food services, and retail. This amounts to over 1 billion tonnes of food wasted each year. Indonesia is the biggest contributor to FLW in Southeast Asia, losing over 20.94 million tonnes annually: enough to feed 29-47% of Indonesians.¹ Economically, this amounts to IDR 213-551 trillion (roughly USD 14-35 billion) annually. It also releases roughly 85.14 million tonnes of CO₂ equivalent in greenhouse gases annually. Business-as-usual projections suggest that Indonesia's annual FLW will exceed 100 million tonnes (see Figure 1 in the annex) by 2045, with commensurate implications for economic and environmental damage. The new government's program which focuses on food production and school meal program may increase the risk of rising FLW if sources beyond production are left unmanaged; food security programs at such a scale as these necessitates a low carbon pathway.

FLW has grown in priority on the Indonesian government's agenda over the last decade. This began with Presidential Regulation (PR) No. 97/2017 which established the national policy and strategy (Kebijakan dan Strategi Nasional, or Jakstranas) on household waste reduction, promoting the 3R (Reduce, Reuse, Recycle) principle, and emphasizing local government responsibilities. The policy aims to reduce household waste by 30% and handle 70% of generated waste by 2025.

Despite these intentions, the implementation of Jakstranas has been uneven, particularly geographically. The decentralized nature of the policy allows local governments to tailor their strategies to specific needs, leading to positive results in some places but less so in others. In urban centers like DKI Jakarta, where infrastructure, financial capacity, and public awareness are relatively advanced, some success has been seen (Avitadira & Indrawati, 2023). These areas have established waste processing plants, partnerships between the private sector and local governments, and raised public awareness on waste separation and recycling. In other places, local governments have managed to prioritise Jakstranas and have not delivered on its aims.

¹ Data presented by Ifan Martino from the Directorate of Food and Agriculture, Ministry of National Development Planning/National Development Planning Agency (Bappenas).

Table 1.
Ratio of waste management allocation from regional budgets in 5 provinces, 2022-2024

| Region | Waste Management Allocation (in trillion IDR) | Regional Budget (in trillion IDR) | % of budget allocated to waste management |
|----------------|---|-----------------------------------|---|
| DKI Jakarta | 1.4 | 57.1 | 2.45% |
| West Java | 0.15 | 36.7 | 0.41% |
| Bali | 0.13 | 6.8 | 1.97% |
| West Sumatera | 0.14 | 7 | 1.99% |
| North Sumatera | 0.13 | 13.4 | 1.00% |

Source: Data for DKI Jakarta from Wisanggeni et al. (2022), West Java from Setiawan (2024), Bali from Balipost (2024), West Sumatera from West Sumatera Regional People's Representative Council (2024), and North Sumatera from North Sumatera Province Development Administration Bureau (2024)

Table 1 shows the amount allocated for waste management by selected regional governments, where only less than 3% of their budget is allocated at best. As a comparison, globally, the average budget spent on waste management is 20% for low-income countries and 10% for middle-income countries (Kaza et al., 2018). Furthermore, economic development and the degree of urbanization seem uncorrelated with the government's commitment to waste management. This is shown by Jakarta and West Java being the ones with respectively the highest and lowest percentage of budget allocated for waste management.

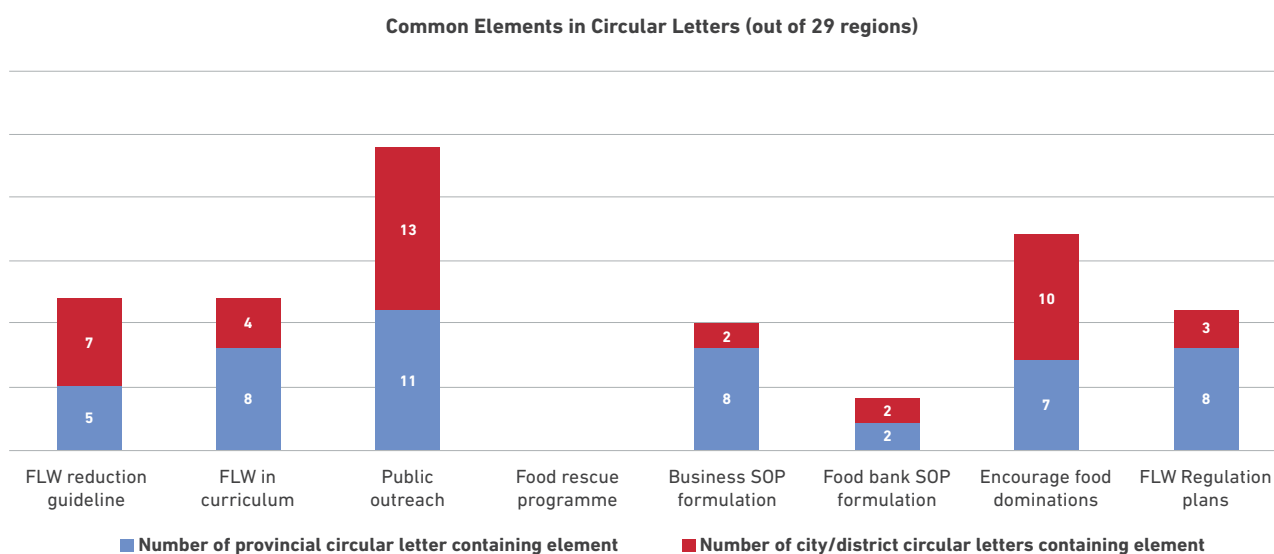
In 2024, the government of Indonesia (GoI) issued a roadmap toward achieving 75% reduction in FLW by 2045. There is also ongoing development of a new draft presidential regulation (*Peraturan Presiden* or *Perpres*) focused on FLW management. The *Perpres* aims to establish a comprehensive and coherent framework to manage FLW, involving diverse government institutions.

Currently, 29 local governments have implemented and disseminated policies and programmes through seminars, events, and other outreach activities to promote reduction of FLW. While taking this first step is commendable, the vast majority of these policies are written in the form of *surat edaran* (governors' circular/instruction letter). At the time of writing, 14 provincial and 15 district governments have issued circular letters (*surat edaran*) on FLW management and reduction in support of the National Food Agency (NFA)'s *Gerakan Selamatkan Pangan* campaign.

These circular letters express a voluntary commitment to establish FLW management policies in their jurisdiction, but they are not yet legally enforceable on constituents. Ultimately, this means that FLW reduction still relies on voluntary action. Without stronger financial support, capacity-building initiatives, and effective coordination, the FLW management goals and the 2045 target of 75% FLW reduction are at risk of becoming unrealized.

While the existing approach theoretically allows for region-specific solutions, it has also led to inconsistencies and gaps in implementation across different regions. As seen in Figure 1 below, efforts and policies on FLW as stated in the circular letters differ widely from one local government to another, highlighting the diversity in FLW policies across multiple regions. The regions in the graphs below show varying degrees of engagement across different policy areas. Notably, West Java at the provincial level and Cirebon at the level leads with the most comprehensive coverage; in contrast, several regions, such as Palembang and Kebumen District, lack initiatives in key areas like public outreach and food rescue. Regions like West Java have strong commitments in specific areas, such as plans for further development of regulations and food bank SOP² formulation, but display gaps in other elements such as the implementation of food rescue programs (see Annex 3).

Figure 1.
Common elements found in the 29 local policies and the number of regions containing them, 2023



Source: Data from each region's respective circular letters, compiled by author³

Overall, the 29 local policies do encourage donation of surplus food, but they lack comprehensive, institutionalized food rescue initiatives. This current approach places the responsibility largely on private entities, non-governmental organizations, and community groups, rather than integrating it into formal government policy. The result is a lack of consistency, coordination, and long-term viability, which may limit effectiveness. Effective food rescue policy ideally outlines the logistics of the operation, the roles and responsibilities of key stakeholders, groups targeted for donation, guidelines for handling and distributing surplus food safely, and mechanisms for monitoring and evaluating impact.

Furthermore, there seems to be insufficient attention to link the degree of FLW management to the level of urban development and at the District level. This suggests that policy implementation may be influenced by local governance capacity, resource availability, and prioritization of FLW issues at the level. The fragmentation of policies between regions can lead to inconsistencies in FLW management efforts, with some regions excelling in certain areas while others can lag behind. Some local governments outline detailed and actionable strategies, while others present more general and less impactful measures. Areas like the city of Cirebon, which exhibit a more structured approach with policies on food rescue programs and food bank SOP formulation, may benefit from stronger institutional frameworks and partnerships with non-governmental organizations. In contrast, rural regions such as Kebumen District may face challenges due to limited resources or lower public awareness, leading to fewer initiatives.

² Standard Operating Procedure (SOP) is a set of instructions that help employees perform routine tasks.

³ For a detailed table of each region, see Table 2 in the Annex

Opportunities for Food Rescue Programs

Food rescue, which involves redistributing surplus food to people in need, has become a critical component of waste reduction strategies in other countries. Food rescue holds immense potential to significantly reduce FLW in Indonesia, yet it remains an underutilized and often overlooked strategy. Despite its promise, food rescue has largely been driven by a handful of NGOs operating in isolation, without robust support or integration into national policies. To fully unlock the potential of these programs, three key actions are necessary: synergizing fragmented efforts, providing targeted incentives, and ensuring comprehensive liability protections. Synergizing involves creating partnerships between NGOs, businesses, and local governments to streamline operations and expand the reach of food rescue initiatives. Incentives, both financial and non-financial, can motivate businesses and local authorities to actively participate in food donation efforts. Finally, liability protection is essential to alleviate legal concerns and encourage greater involvement from stakeholders, ensuring that surplus food can be redistributed safely and confidently.

Synergizing food rescue initiatives

One of the most significant shortcomings of the national and regional strategies (Presidential Regulation 97/2017) is a lack of attention to structured food rescue programs. Currently, food rescue initiatives in Indonesia are mostly led by NGOs and a few private sector players. Organizations like Food Rescue Warriors, Garda Pangan, Aksata Pangan, PIKAT, Food Bank of Indonesia, Feeding Hand, Ruang Pangan, Zero Waste, Gita Pertiwi and other volunteer communities in more than 8 cities have been working to collect and redistribute surplus food from restaurants, hotels, and supermarkets to vulnerable communities (Syamdidi et al, 2024). The food rescue program by PIKAT even connects to school meal program. Meanwhile, private enterprises such as Surplus have built their business model around partnering with more than 5,000 merchants (hotel and food services) all over Indonesia to resell more than 500 tonnes of surplus-but-edible food at a drastically lower cost to more than 1 million consumers through their app.

Food rescue as an avenue of FLW reduction has significant potential, as organizations can save tonnes of food every month while feeding millions (Annex 5). These efforts can be scaled up in scope and reach. If the creation of a localized strategy for each region is made mandatory and supported by legal frameworks and incentives, there is potential to even scale the program nationwide. The absence of a legal basis for formal partnerships between businesses, local governments, and food banks means that a large portion of edible food still ends up in landfills. The issuance of law or regulation on food rescue at the national level to set the baseline standard on acceptable food rescue practices and annual targets akin to Jakstranas is required.

Table 3.
Provinces with FLW policy and NGO initiatives on Food Rescue

| Region | Local government policy | NGO initiatives | |
|---------------|--|------------------------|--------------------------------|
| | | Organisation | Impact: Total food rescued |
| North Sumatra | Governor instruction on action plan on FLW reduction | Aksata Pangan | 18 tonnes (2022) |
| West Java | Governor circular letter on food rescue and prevent food waste | Food Bank Bandung | 7.3 tonnes (2024) |
| Banten | Governor circular letter on food rescue | Feeding Hand Indonesia | 12 tonnes (2023) |
| Lampung | Governor circular letter on food rescue | Ruang Pangan | 8200 food portion (2024) |
| Bali | Governor circular letter on food rescue | Scholars of Sustenance | 1.2 million tonnes (2016-2024) |

Source: Data from each organization's respective website, compiled by Author

The absence of food rescue from the existing national regulation explains its weak implementation in most regions that have committed to FLW management. This has also left food rescue initiatives with insufficient national benchmarks, creating a gap in assessing, monitoring and improving the implementation. Without a universal standard operating procedure, legalised targets, and standardized monitoring metrics, it is challenging to track progress, identify inefficiencies, or measure the impact of existing food rescue initiatives. Organizations tend to quantify their impact through the number and weight of food portions, and individual beneficiaries, as those are what they work with on a daily basis. However, this may not cover other metrics that are more insightful for policymakers: financial impact of FLW such as cost savings from reducing waste, emission reduction, and participation levels of businesses, NGOs, and local governments in food rescue programs. This lack of standardization at the national level is most evident in the 29 local governments' policies, since most of them only order local state apparatus, government officials, and hospitality businesses to formulate their own standard operating procedures without providing a baseline or a guideline. There are opportunities to synergise local government policies and NGO initiatives, including in North Sumatra, West Java, Banten, Lampung, and Bali. The focus could be directed to the national school meal program or Makan Bergizi Gratis (MBG) in those provinces, to prevent food waste from the program.

In France, it has been implemented as nation-wide policies for supporting FLW reduction, such as the Loi Garot of 2016 that requires supermarkets and other large food retailers to donate unsold food to charities (French Ministry of Agriculture, 2022). By 2021, food rescue organizations such as Restos du Coeur reported an increase of 24% in food donations from supermarkets, with others reporting similar numbers (Gaborit, 2021). These businesses are also mandated to report the quantity of food donated, allowing for transparent data collection, which feeds into a national database. This enables policymakers to monitor the effectiveness of the food rescue law, measure its social and environmental impact, and refine strategies to increase participation and efficiency.

Provision of incentives

Another significant challenge facing food rescue as an avenue of food rescue in Indonesia is the lack of incentives to encourage local governments as well as businesses to actively participate in food waste reduction and food rescue initiatives. At present, fiscal support for local governments' general waste management, stipulated by Minister of Finance (MoF) Regulation No. 26/2021, comes in the form of the Regional Incentive Fund (Dana Insentif Daerah or DID), as well as the Physical and Non-Physical Special Allocation Fund (Dana Alokasi Khusus or DAK) for waste management. Both funding types are meant to support regional development, but DID acts as an incentive for good governance and performance, while DAK addresses targeted needs and project-based support.

DID is awarded to local governments based on their performance in various sectors, such as education, health and public infrastructure (Saefuloh et al, 2019). In 2021, IDR 13.5 trillion of DID were allocated to local governments (Directorate General of Fiscal Balance, 2020). These funds are designed to reward regions that demonstrate good governance, fiscal management, and progress in priority areas, encouraging local governments to improve their performance. However, DID allocations under Minister of Finance Regulation No. 26/2021 are not prioritised to food rescue initiatives: Article 7 stated that the DID can be used for general management if it is not used for other priority sectors. As a result, there is limited DID allocated to FLW management in general, which means that local governments lack direct financial incentives to prioritize food rescue programs. This gap results in many regions neglecting specific actions to tackle food waste, as the limited resources they have are often directed toward more general waste management efforts or other sectors that are incentivized by DID. Without clear rewards for achieving FLW reduction targets, local governments, especially those in under-resourced regions, are unlikely to allocate the necessary funding or effort toward food rescue programs. While some cities and provinces with greater financial capacity have been able to invest in the necessary logistics and public awareness campaigns, many others simply lack the resources to implement meaningful changes. This is displayed in the local government policies mentioned in the previous section.

Similarly, the aforementioned Minister of Finance Regulation No. 26/2021 does mention fiscal incentives for businesses, but only to facilitate funding and support for entities specifically involved in waste management activities, such as processing, recycling, or converting waste into energy. These businesses may include public or private companies that have been selected by local governments to implement waste management infrastructure projects or those that are participating in waste management through Public-Private Partnerships (PPP) on food rescue. The regulation's lack of inclusion for businesses in general, such as those in the hospitality or food and beverage sectors that generate a large portion of food waste, is a significant flaw. By not recognizing and incentivizing these types of businesses to engage in food rescue operations, the regulation overlooks potential contributions to waste reduction that come from redistributing surplus food and minimizing food waste at a major source.

Liability protection for the actors

Liability protection is the third major challenge for scaling up food rescue programs. Businesses, food banks, and NGOs participating in food rescue activities are liable to face legal trouble due to the nature of leftover food. For example, should a person fall ill after consuming food donated from a food rescue activity, the donors as well as other participants could face legal repercussions. Article 41 of Government Regulation No. 86/2019 states that the distribution of 'contaminated' food is prohibited, further specifying that expired food is considered contaminated. This leaves food rescue operations in a legal grey zone and deters serious participation from businesses in fear of fines and/or prosecution.

Elsewhere, liability protection plays a crucial role in fostering a culture of altruism by alleviating the fear of legal repercussions for businesses and organizations participating in food rescue programs. In countries like the United States, the Bill Emerson Good Samaritan Food Donation Act (1996) provides civil and criminal liability protection to food donors and nonprofit organizations, as long as the donated food is fit for consumption at the time of donation and complies with safety standards. This legislation has been instrumental in encouraging widespread participation in food donation efforts, enabling businesses to contribute surplus food without fear of litigation. Even in countries comparable to Indonesia such as Brazil, the 2020 Food Donation Law provides civil and criminal liability protection to donors and intermediary organizations as long as donations are made in good faith, the food is safe at the time of donation, and there is no intent to harm (Global FoodBanking Network, 2024). Such a model could be adapted for Indonesia, providing businesses and NGOs with the confidence to engage in food rescue activities without fear of legal consequences. Liability protection could also be coupled with guidelines to ensure food safety during collection, transport, and distribution, creating a structured and accountable system for food rescue.

In addition to incentivizing donations, liability protections could pave the way for stronger public-private partnerships. Businesses would be more likely to collaborate with NGOs and local governments, fostering innovative approaches to FLW management. Clear legal safeguards would also encourage investments in infrastructure, such as cold storage and transportation systems, to support the safe redistribution of surplus food. With these measures in place, Indonesia could replicate the success of countries like Brazil and the US, turning food waste into an opportunity to address food insecurity while reducing environmental harm.

While Government Regulation No. 86/2019 addresses food safety concerns, it has not considered the potential for safe redistribution under controlled conditions. Without legal assurance, even well-intentioned businesses would be hesitant to participate in food rescue initiatives, resulting in significant amounts of edible food being discarded instead of redirected to those in need. Addressing liability concerns through clear, enforceable protections would not only remove barriers to food rescue but also align Indonesia's policies with global best practices. By safeguarding participants in food rescue operations, Indonesia could create a supportive legal environment that encourages meaningful contributions from businesses and organizations instead of sporadic, uncoordinated donations (as exemplified by Annex 3).

Proposed Action

1. Strengthening national regulation on FLW

Issuing the presidential regulation and setting a national standard on FLW management

The Bappenas roadmap for FLW regulation targets the completion of a final draft for FLW Norms, Standards, Protocols, and Criteria (NSPK) by 2025.⁴ NSPK encompasses a comprehensive regulatory framework that goes beyond guidelines and includes enforceable norms, detailed protocols, and specific criteria applicable across various administrative and sectoral levels. The national budget also lacks any mention of NSPK for FLW, indicating it is still in the data collection stage and might miss the 2025 deadline. Regulators must speed up the process, ensure transparency, involve stakeholders, and secure funding to avoid missing the chance to create effective FLW management implementation. The NSPK can adapt the Standard Method for Calculating Food Losses for Farmers and the Standard Method for Calculating Food Waste in Retail (FOLU, 2024) published by NFA and Koalisi Sistem Pangan Lestari (KSPL). These provide standardized methodologies for calculating FLW in the retail and agricultural sectors. Full NSPK would integrate these methods with broader legal and procedural mandates to ensure a unified and enforceable approach to FLW management nationwide.

Cementing NSPK for FLW management would create a consistent and enforceable framework across all levels of government. NSPK can establish the norms for how food rescue is conducted, including the safety standards for the redistribution of food, and the criteria for selecting eligible food rescue partners, such as well-performing food banks and non-profit organizations. Additionally, NSPK can provide clear protocols for local governments to follow under *Jakstrada (Kebijakan dan Strategi Daerah* or Regional Policies and Strategies) when setting up food rescue programs, ensuring compliance with national waste reduction targets outlined in *Jakstranas*. For example, NSPK could detail the standards for how surplus food is handled, transported, and distributed to ensure food safety, and outline the standards for monitoring and reporting food waste reduction efforts at the regional level. This linkage would address the current gaps in implementation, particularly in regions where food rescue efforts are inefficient and lacking due to the absence of clear guidelines. By incorporating NSPK into both *Jakstranas* and *Jakstrada*, local governments would be better equipped to foster collaborations between businesses, NGOs, and local communities, streamlining efforts in food rescue and ultimately reducing FLW across the country. The NSPK must also include the MBG program as target implementation.

The Draft of Presidential Regulation on Handling and Management of Food Loss and Waste presents an opportunity to address the existing shortcomings in Indonesia's FLW policies. If integrated well, this upcoming law could complement the NSPK by providing the binding legal structure necessary for consistent and robust implementation across regions. This regulation could require local governments to have policies and strategies in place for FLW reduction and food rescue initiatives, shifting them from voluntary, disparate efforts to consistent practices supported by clear mandates and budget, and obligations for local governments and businesses alike. Such a law could establish detailed protocols for food rescue operations, safety standards for redistribution, and specific criteria for eligible partners like food banks and NGOs. However, for this regulation to be a practical solution, it must do more than outline high-level objectives; it needs to include specific, actionable steps and robust enforcement mechanisms. The regulation can upgrade the 25 policies issued by the local governments. Moreover, the draft law should be flexible enough to accommodate the varying capacities of different regions to prevent exacerbating existing disparities between resource-rich urban centers and under-resourced rural areas.

⁴ The target was found in the Roadmap of Food Loss and Waste Management in Supporting Food Resilience Towards Golden Indonesia 2045 published by Bappenas and includes a planned public participation and harmonization. Despite the nearing deadline, we were unable to find more information about public consultation in the drafting, budget commitments, and other steps in the roadmap.

Liability protection for food rescue initiatives

The upcoming regulations and the Norms, Standards, Protocols, and Criteria (NSPK) must explicitly address liability protection for food rescue programs to safeguard and provide clear guidelines for all stakeholders involved, including donors, intermediaries, and recipients. Effective liability protection is essential to alleviate the legal concerns of businesses and organizations engaging in food donation, as it reassures them that their contributions will not expose them to undue risks. Such protections should clearly define the conditions under which surplus food can be donated, ensuring that it meets safety standards at the time of donation and is handled appropriately during transport and redistribution. Additionally, these regulations should specify the responsibilities of different actors, establish protocols to monitor compliance, and include provisions to protect donors acting in good faith from civil or criminal liability. By integrating liability protections into the NSPK framework, the government can encourage more widespread participation in food rescue initiatives and align local practices with international standards, ultimately fostering a culture of responsible food redistribution.

Parallel to introducing new regulatory measures, it is critical for regulators to consider amending Article 41 of Government Regulation No. 86/2019, which currently prohibits the distribution of “contaminated” food, including expired items, without sufficiently distinguishing between unsafe and surplus food that remains fit for consumption under controlled conditions. An amendment to this article could introduce explicit provisions that differentiate between genuinely unsafe food and surplus food that meets safety criteria, thereby providing a legal foundation for safe food redistribution practices. Furthermore, such an amendment could incorporate protective clauses for donors, ensuring they are shielded from liability when donations are made in good faith and in accordance with established safety guidelines. These changes would not only remove existing barriers to food rescue efforts but also promote greater confidence and participation among businesses, NGOs, and other entities, enabling the recovery of edible food that would otherwise go to waste.

2. Amendment of MoF Regulation No.26/2021 to accommodate incentives for FLW initiatives

The Minister of Finance Regulation No. 26/2021 should be amended to prioritise FLW management and food rescue in the use of DID and DAK. This would ensure that local governments have the motivation and resources needed to address the FLW issue. The regulation should also incorporate FLW management into the criteria to receive DID. This would incentivize local governments to integrate comprehensive food waste reduction strategies within their broader waste management plans. Such inclusion would encourage regions to adopt targeted initiatives including food rescue programs, infrastructure improvements, and public awareness campaigns, enabling a more equitable and effective waste management ecosystem. Regulators could directly tie funding to measurable outcomes in FLW reduction. These metrics could encompass a range of achievements, such as the implementation of food rescue programs, reductions in the amount of food waste sent to landfills, or successful collaborations with NGOs and private sector partners to support sustainable practices. Integrating FLW metrics into DID would ensure that local governments have a clear financial reason to prioritize these initiatives, shifting focus from general waste management to targeted actions that address food waste at its source. This would particularly benefit under-resourced regions, motivating them to reallocate budgets and efforts toward more comprehensive waste strategies.

Furthermore, extending fiscal incentives to non-waste management businesses could be incorporated as a further amendment to the regulation. By revising this regulation to include fiscal aid and incentives for sectors beyond traditional waste management—such as hospitality and food service—the government could significantly boost participation in FLW reduction efforts. This amendment could introduce waste levies reduction for food donations and deductions for businesses that engage in food rescue, making waste-reducing practices more financially attractive. Such incentives would particularly benefit small

and medium-sized enterprises, motivating them to adopt sustainable practices that might otherwise be economically unfeasible. Unlike DID-based incentives, which mainly target local governments, these direct fiscal measures would encourage businesses to integrate food rescue and FLW management into their operations. This potential amendment would bridge the gap between regulatory expectations and practical business adoption, fostering a proactive approach to waste reduction and aligning private sector efforts with national FLW management goals.

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3. Increasing coordination and collaboration in FLW task forces

Effective coordination among all stakeholders and sectors in Indonesia’s food supply chain is essential for reducing FLW. A coordinating role for the government is pivotal. One actionable step would be establishing national and regional task forces (Satuan Tugas Daerah or “Satgas”) that bring together local governments, producers, businesses, and NGOs to tackle FLW at national and regional levels. Through these task forces, stakeholders can jointly develop and implement localized FLW strategies, ensuring that actions are aligned with national and regional policies, including targeting the MBG program.

To foster coordinated efforts between producers and other stakeholders, the government should establish multi-stakeholder platforms where producers can regularly engage with businesses, government agencies, and NGOs. These platforms should focus on improving production planning, enhancing post-harvest management, and sharing innovations in packaging technology. The government could incentivize collaboration by offering grants or assistance that only apply if producers adopt joint initiatives with other stakeholders, such as partnering with food banks for surplus food redistribution. This coordinated approach ensures that food losses at the production stage are minimized through shared resources and knowledge.

Businesses could collaborate with producers, government agencies, and NGOs to improve FLW management along their entire supply chain. A coordinated initiative such as Gotong Royong Atasi Susut dan Limbah Pangan (GRASP) could be expanded and involve setting up regional food donation hubs where businesses and producers can donate surplus food, supported by government-led logistics solutions to distribute it efficiently (Indonesia Business Council for Sustainable Development, t.t.). To encourage participation, the government could offer tax incentives or public recognition for businesses that work with producers and NGOs to implement food rescue programs. Furthermore, businesses could integrate data-sharing systems to report on food waste reductions, enabling a transparent and accountable mechanism that tracks progress across sectors.

NGOs should be better coordinated in food rescue efforts by acting as intermediaries between producers, businesses, and local governments. They can facilitate partnerships where surplus food is collected from businesses and redistributed to those in need. To scale these efforts, the government should provide funding and logistical support for local NGOs to establish more food banks across regions. Regular dialogue between NGOs and government task forces would ensure that food rescue programs are aligned with national waste reduction goals, while the introduction of joint training programs would enhance the capacity of all stakeholders involved in FLW reduction.

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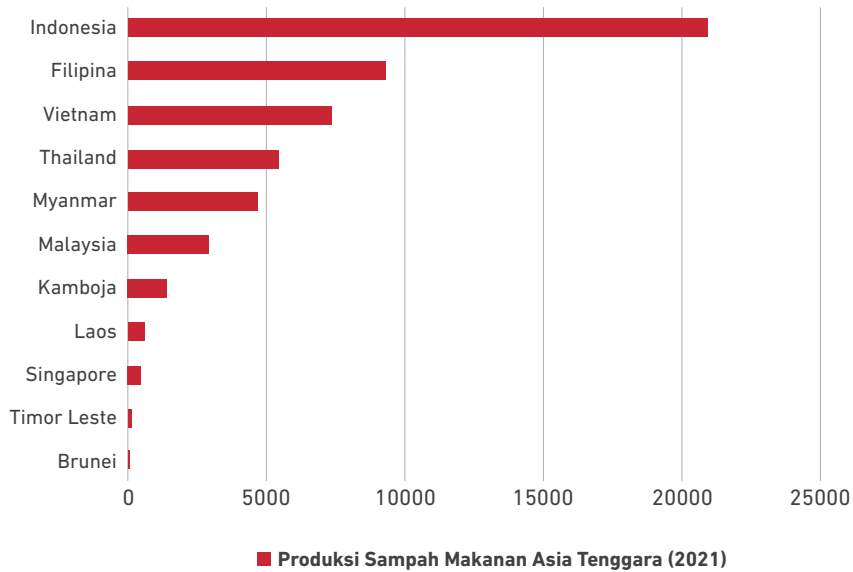
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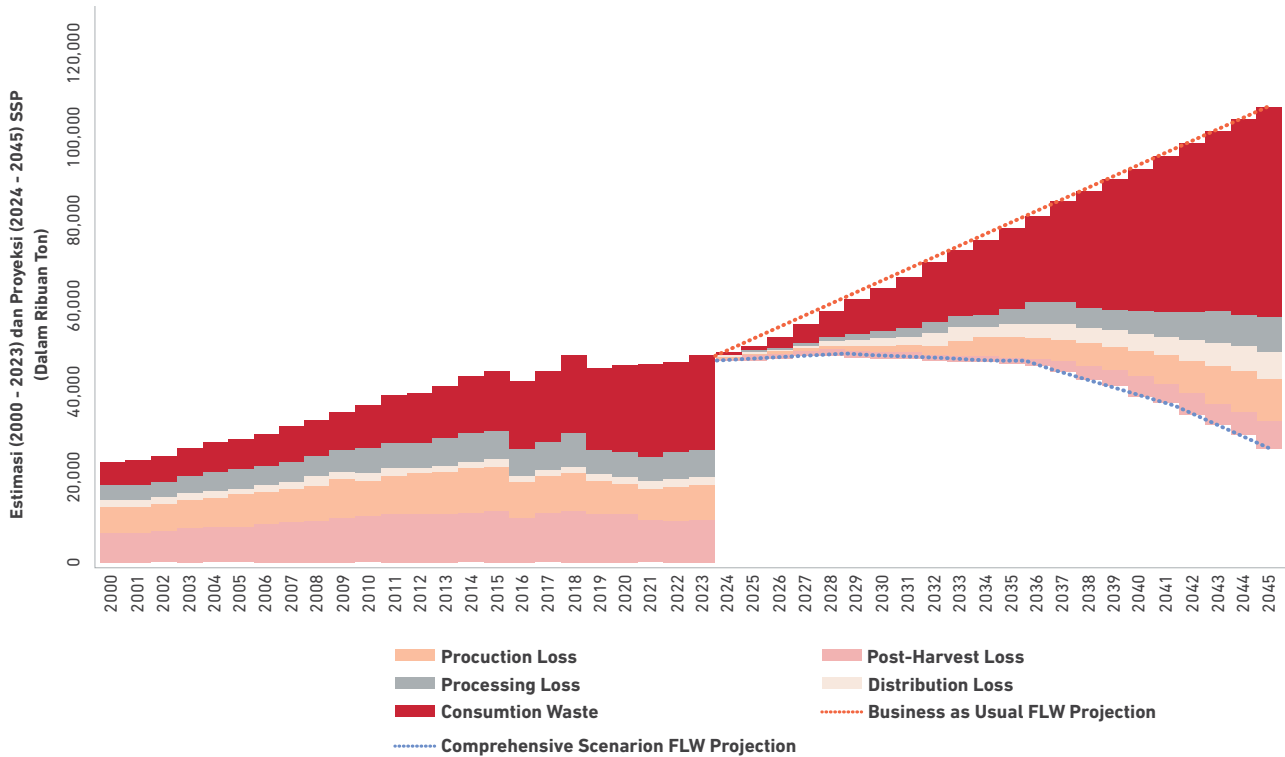
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Annex 1.
Food waste production from Southeast Asian countries in 2021



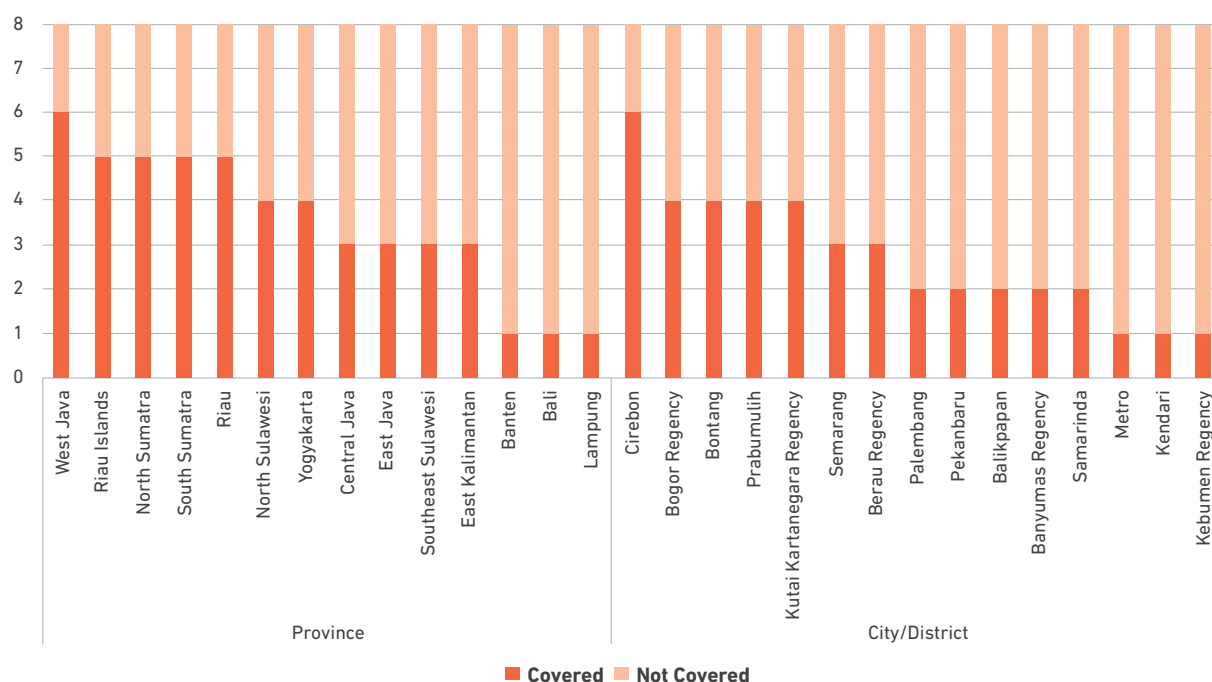
Source: Bappenas

Annex 2.
FLW estimation between 2000 - 2023, and projection between 2024 and 2045



Source: Bappenas

Annex 3. Coverage of the common elements in individual circular letters



Source: Bappenas

Annex 4. Coverage of local FLW policies in all regions with FLW management commitments (2021-2024), arranged from most urban to most rural by population per square km

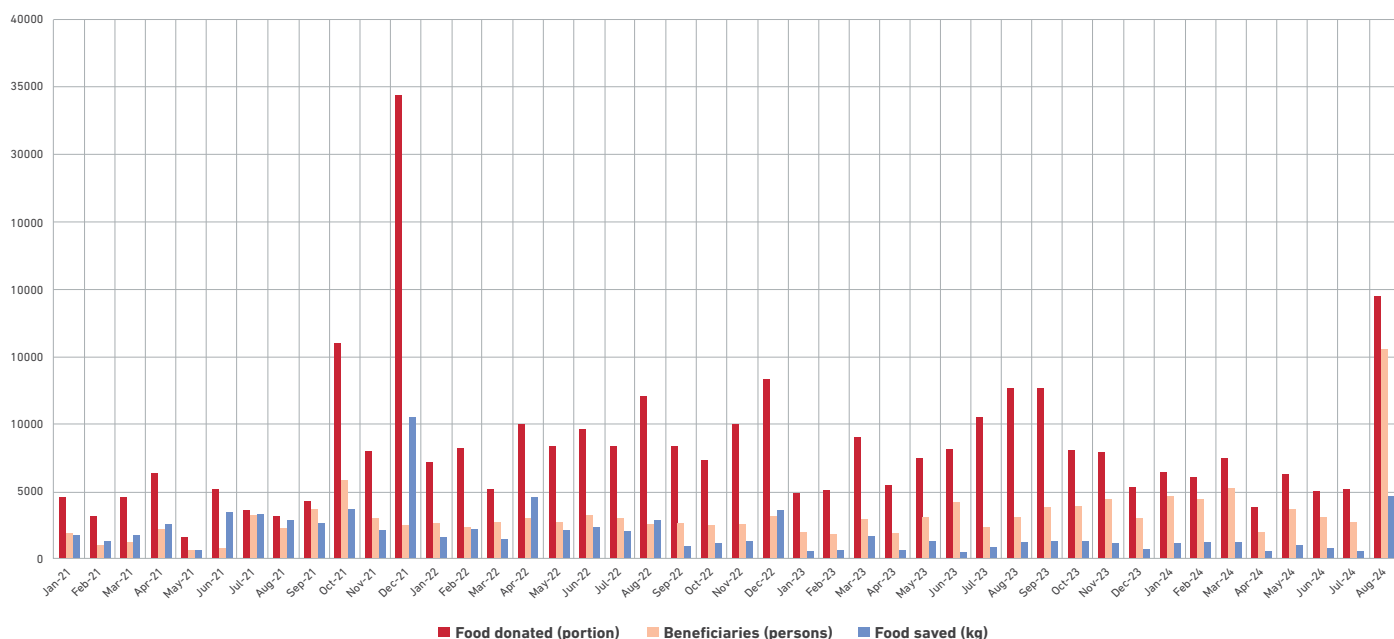
| Administration | Region | Population Density Organisation | Contents of circular letter on FLW | | | | | | | |
|----------------|--------------------|---------------------------------|------------------------------------|-------------------|-----------------|-------------------------------------|--------------------------|---------------------------|--------------------------|----------------------|
| | | | FLW reduction guideline | FLW in curriculum | Public outreach | Food rescue programme ²⁰ | Business SOP formulation | Food bank SOP formulation | Encourage food donations | FLW Regulation plans |
| Provincial | West Java | 1338 | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ |
| | Banten | 1324 | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | Central Java | 1105 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |
| | East Java | 863 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |
| | Bali | 774 | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | Lampung | 268 | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | Riau Islands | 260 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ |
| | North Sumatra | 213 | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ |
| | North Sulawesi | 185 | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ |
| | Yogyakarta | 117 | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ |
| | South Sumatra | 102 | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ |
| | Riau | 76 | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ |
| | Southeast Sulawesi | 76 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ |
| | East Kalimantan | 31 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |

²⁰ Some aspect of food rescue initiatives exists in some documents (collaboration, management of surplus food, operational standards, etc.) but none contain the urgency needed for rescuing perishable/near-expiry food, the logistical framework, or specify targeted sources (e.g. food rescue in restaurants, hotels, etc.)

| Administration | Region | Population Density Organisation | Contents of circular letter on FLW | | | | | | | |
|----------------|----------------------------|---------------------------------|------------------------------------|-------------------|-----------------|-----------------------|--------------------------|---------------------------|--------------------------|----------------------|
| | | | FLW reduction guideline | FLW in curriculum | Public outreach | Food rescue programme | Business SOP formulation | Food bank SOP formulation | Encourage food donations | FLW Regulation plans |
| District | Cirebon | 8714 | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ |
| | Palembang | 4671 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | Semarang | 4560 | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ |
| | Metro | 2364 | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | Bogor District | 1781 | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | Pekanbaru | 1684 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | Balikpapan | 1393 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | Banyumas District | 1308 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | Kendari | 1280 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | Bontang | 1168 | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |
| | Samarinda | 1160 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | Kebumen District | 1054 | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | Prabumulih | 416 | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| | Kutai Kartanegara District | 28 | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |
| | Berau District | 12 | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |

Source: Data from each region's respective circular letters, compiled by author

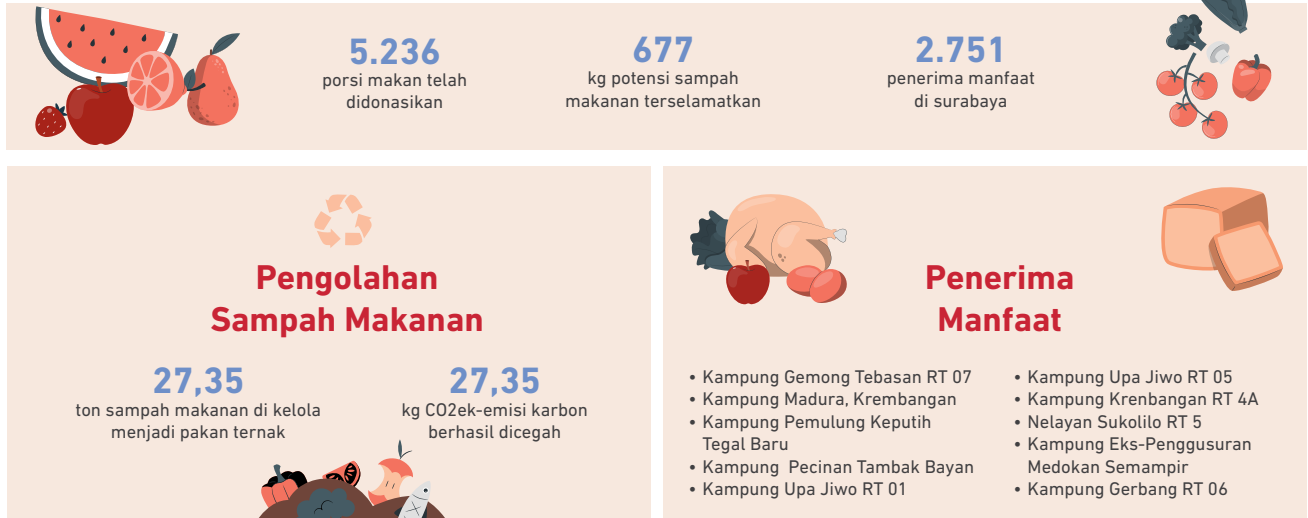
Annex 5. Food rescue results from an NGO in East Java, January 2021 - August 2024



Source: Garda Pangan monthly food rescue report posted under @gardapangan on Instagram, compiled by Author

Annex 6.
Example of NGO monthly food rescue report

Food Rescue Juli 2024



Source: Source: Garda Pangan monthly food rescue report posted under @gardapangan on Instagram, compiled by Author

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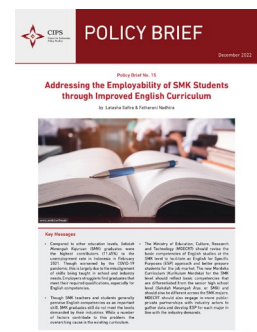
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