Nourishing Communities: Gita Pertiwi's Justice-Centered Food Sharing Model in Surakarta, Indonesia

The power of local communities in preventing food waste and delivering climate actions

Index

Summary

Photo: Gita Pertiwi's cheap redemption model where vegetables are sold at low prices

According to the UN Environment Programme's Food Waste Index Report 2021, Indonesia is the largest food waste producer in Southeast Asia. The report found that around 20.93 million tons of food waste are produced annually in Indonesia. According to data from the Ministry of Environment and Forestry of Indonesia (Kementerian Lingkungan Hidup dan Kehutanan), in 2023, Indonesia's food waste accounted for 40.73% of the total waste composition, or approximately 13,743,661 tons per year.

Gita Pertiwi is a non-governmental organization (NGO) focusing on environmental conservation and community development activities. It is committed to promoting sustainable food systems through two key programs: (1) Sustainable Agriculture and (2) Sustainable City. The Sustainable Agriculture program focuses on community-based regenerative agriculture in rural areas, aiming to enhance soil fertility, water quality, and biodiversity while also boosting farmers' incomes. The Sustainable City program promotes sustainable urban lifestyles by encouraging regenerative agriculture, developing inclusive food markets, and managing food waste through food sharing and responsible consumption. One of Gita Pertiwi's strategies for the two programs is the integration of a food sharing system into its broader strategy, where they ensure that food which might otherwise be wasted is redistributed to those in need. This would effectively reduce food loss and waste.

In the past five years, Gita Pertiwi has been successful in implementing a collaborative food sharing program to prevent food waste generation. It has done this by optimizing excess food in an ethical manner, where the food is still suitable for consumption and has good nutritional content. Excess food from food donors, both individuals and institutions, is distributed to recipients, who are chosen using the criteria of poverty, special needs, and nutritional problems.

The beneficiaries are Putri Cempo landfill waste pickers, street sweepers who work for the Surakarta Environmental Agency, and safe houses for elderly people, people with mental illnesses, and children.

Context

Food surplus is a problem in many parts of the world. [The United Nations Environment Programme (UNEP) Food Index Report 2024](#) estimates that in 2022, the world wasted 1.05 billion tonnes of food in the retail, food service, and household sectors combined. This amounts to 132 kilograms per capita per year, of which 79 kilograms were wasted in households. Ironically, food wastage is common even among poorer countries, especially those with dense populations.

In recent years, Indonesia has shown an increasing trend in urbanization. According to the World Bank (WB), Indonesia is the fourth most populous country in the world with 220 million people. The Indonesia Central Bureau of Statistics (BPS) and the Ministry of National Development Planning of Indonesia (Bappenas) estimate that the population will grow to 297.43 million by 2030, 308.37 million by 2035, and may reach 319 million by 2045. In 2020, according to BPS, 57.3% of the population lived in urban areas. BPS, Bappenas, and WB project that the population in urban areas will increase to 64.5% in 2030, 66.6% in 2035, and 72.8% by 2045.

Reasons for moving to urban areas include better jobs, education, and access to services (Renner, 2000). People do so to increase their purchasing and consumption power. However, ease of technology or frequent food discounts promote consumption, raising the risk of food waste generation.

Indonesia's Central Bureau of Statistics says the income disparity in Indonesia is closely linked to poverty. Some 55.98% of the people who live in Indonesia are spread on Java Island, which accounts for 57.17% of the GDP. The nation's GDP is about 5000 trillion rupiah. Ironically, Java Island is also the region with the largest distribution of poor people in Indonesia: 14 million people or 52% of the total national poor population. This includes Surakarta which is located in Central Java Province and had a population of 43,000 poor in 2023 (Indonesia's Central Bureau Statistics, 2024).

Due to a host of factors, not the least of which is population, Indonesia is the largest food waste producer in Southeast Asia. The UN Environment Programme's Food Waste Index Report 2021 found that around 20.93 million tons of food waste are produced annually in Indonesia. According to data from the Ministry of Environment and Forestry of Indonesia (Kementerian Lingkungan Hidup dan Kehutanan), in 2023, Indonesia's food waste made up [40.73%](#) of the total waste composition, or approximately 13,743,661 tons of food waste per year.

The Indonesian government has enacted regulation to overcome food loss and food waste issues. Specifically, Presidential Regulation of Indonesia Number 97 of 2017 pertains to the management of household waste and similar waste and sets a target for reducing waste by 30% in 2025. The National Development Planning of Indonesia (Bappenas) has compiled the National Long Term Development Plan (RPJPN) 2025-2045 in order to reach the target of 75% reduction in food loss and food waste. Furthermore, food loss and food waste reduction has become part of [The National Circular Economy Roadmap and Action Plan 2025-2045.](#)

On the other hand, the current global income and wealth gap is still relatively large, affecting the current global poverty rate. According to the Food and Agriculture Organization (FAO), 735.1 million people experience hunger in this world; they are in the three largest regions in Asia, Africa, and Latin America and the Caribbean. In addition, the World Bank said in 2022 that a total of [712 million people around the world live in extreme poverty.](#) This figure represented an increase by 23 million people from the 2019 figure. Based on this data, the famine that is plaguing the world including the Southeast Asia region challenges the second Sustainable Development Goal (SDG) to end hunger.

Surakarta is the third largest city by population in southern Java after Malang and Bandung. With a population of 528,044 in 2024 and 46.72 km2 area of the city, it is one of Indonesia's poorest areas. Nevertheless, it has excess food that is still fit to eat in terms of nutrition, food safety, ethics, and religious beliefs. A collaborative research, Household Level Consumption Patterns in Surakarta, conducted by Gita Pertiwi and Soegijapranata Catholic University in 2017 showed that the excess food (carbohydrates and vegetables) was 10.28 tons/day. This would feed 35,217 people. In 2017, the total poor population of Surakarta was 90,098. The excess food could feed 39.08% of poor people in Surakarta every day.

Another study by Gita Pertiwi and Soegijapranata Catholic University, this time with the Indonesian Consumers Protection Foundation (YLKI) in 2018, revealed that food waste generation from households in Surakarta amounted to 0.49 kg/household/day. During the Covid-19 pandemic, food waste in Surakarta increased. Yet another collaborative research by Gita Pertiwi and Aliansi Zero Waste Indonesia (AZWI) showed that the food waste generated in Surakarta was 0.73 kg/household/day in 2021.

Results of The Management of Excess Food in Hotel, Restaurant, and Catering in Surakarta research from 2018 shows other concerning findings, particularly that:

- Hotels generate 13% of excess food. Fifty-two percent of this is shared with hotel employees but they are not allowed to take the food home. Twenty-two percent becomes food waste or is converted into new meals, and 3% is converted to animal feed. In contrast, hotel rules prohibit sharing of excess food with others due to ensuring food safety concerns and to minimize the risk of misuse.

- Restaurants generate 9% of excess food. Fifty-two percent of it becomes food waste, 40% is converted into new meals, and 8% is shared with employees.

- Catering generates 10% of excess food given to clients. If the clients don't take the food home, the caterers share the food with their employees and the leftovers are shared with orphanages. The beneficiaries have to sign a document detailing the food condition and how to handle it.

A food distribution at Griya PMI Peduli. In the Direct Food Sharing Model, ready-to-eat food donations are distributed to the community

Food donations being distributed to pedicab drivers

Unmanaged excess food becomes waste and accumulates in landfills, emitting methane (CH_4) gas that contributes to climate change and can easily ignite fires during the dry season. Waste from Surakarta is disposed of at the Putri Cempo landfill, which is currently overloaded. In September 2023, the landfill caught fire due to the El Niño effect and the large amount of organic waste. This affects the health and wellbeing of waste pickers and local communities who live around the landfill, especially due to the severe air pollution from the landfill fire. Waste pickers also lost their livelihood access from reclaiming recyclables from the landfill up to three months until the fire was fully extinguished.

Prevention and proper management of excess food will prevent both environmental and social problems. Management of excess food can be done by distributing it to those in need, rather than sending it to landfills. Vulnerable groups can easily access food at no cost, including groceries, vegetables, fruits, herbs, and other nutritious food. The challenge of hotels' prohibition from sharing excess food can be solved by developing Standard Operating Procedures (SOP) to ensure food safety, and distributing the excess food directly and quickly. This SOP serves as a guide for excess food donors, distributors, and recipients in managing and distributing excess food.

Food sharing significantly enhances community food security in urban areas by providing vulnerable and marginalized groups with easier access to food. By preventing food waste, food sharing addresses hunger, mitigates waste crises, and reduces methane emissions that drive climate change. This approach offers a holistic solution, enabling the government of Surakarta and others to tackle multiple challenges effectively. It also contributes positively to the environment by reducing food waste that would otherwise end up in landfills. This aligns with Sustainable Development Goals #2 (Zero Hunger), #12 (Responsible Production and Consumption), and #13 (Climate Action).

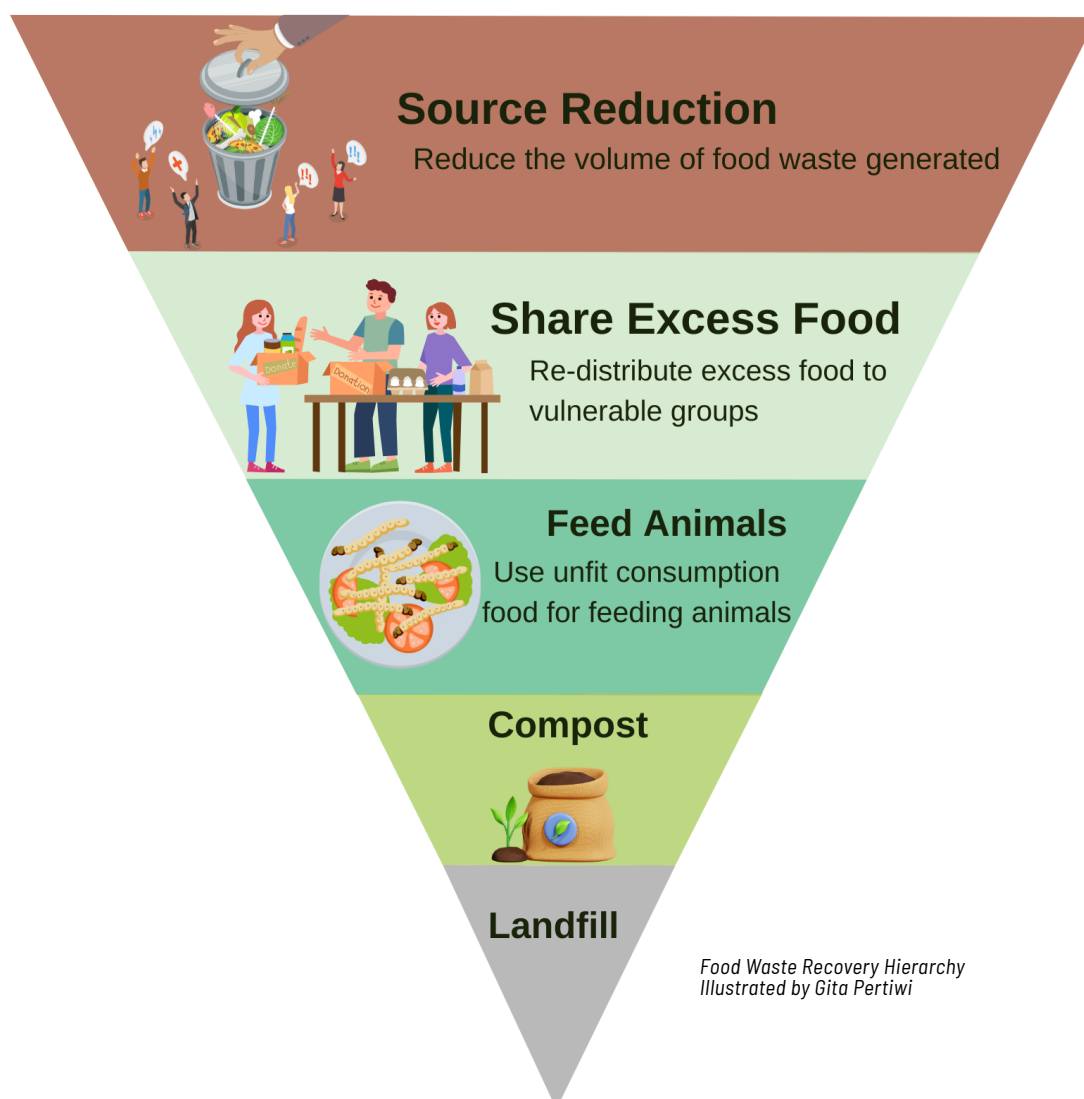*Learn more about Gita Pertiwi in Annex 1.*

Food Sharing Program

Gita Pertiwi is committed to promoting sustainable food systems through two key programs: (1) Sustainable Agriculture and (2) Sustainable City. The Sustainable Agriculture program focuses on community-based regenerative agriculture in rural areas, aiming to enhance soil fertility, water quality, and biodiversity while also boosting farmers' incomes. The Sustainable City program, on the other hand, promotes sustainable urban lifestyles by encouraging regenerative agriculture, developing inclusive food markets, and managing food waste through food sharing and responsible consumption.

One of Gita Pertiwi's strategies for the two programs is the integration of the food sharing system into its broader strategy, where they ensure that food which might otherwise be wasted is redistributed to those in need. This effectively reduces food loss and waste. In the past five years, Gita Pertiwi has been successful in implementing a collaborative food sharing program to prevent food waste generation by optimizing excess food in an ethical manner, where the food retains its nutritional content and is still suitable for consumption. Excess food from food donors, both individuals and institutions, is distributed to recipients who are chosen using the criteria of poverty, special needs, and nutritional problems.

The success of Gita Pertiwi's food sharing program is deeply rooted in the principles of environmental justice that follows the waste hierarchy. The hierarchy serves both as a basic concept and guiding framework for the food waste recovery program in achieving a sustainable food system in Surakarta City.

Source Reduction
Reduce the volume of food waste generated

Share Excess Food
Re-distribute excess food to vulnerable groups

Feed Animals
Use unfit consumption food for feeding animals

Compost

Landfill

Food Waste Recovery Hierarchy
Illustrated by Gita Pertiwi

The inverted pyramid concept illustrates the flow of handling excess food to minimize organic waste in landfills. The process begins with source reduction through education and awareness campaigns under the "Stop Food Waste" initiative, targeting schools, households, and community groups. Then, it translates into the implementation of three food sharing models through the foundation of the Carefood community.

Next, excess food that is still edible is distributed to vulnerable groups, following strict safety protocols. Inedible food is then repurposed for animal feed, supporting a circular economy and generating income for urban farmers. Organic waste is composted into fertilizer, further reducing waste.

The final step, sending waste to the landfill, is considered a last resort due to its environmental impact. All of these steps are done in collaboration with various actors – youth groups, women's groups, the academe, waste pickers, governments, and the private sector, among many others — to ensure a justice-centered approach.

Most recently, this has evolved further into a policy advocacy work where Gita Pertiwi provides technical assistance to co-develop the following policy products with local, provincial and national governments officials, such as:

1. Presidential Regulation on food loss and waste

2. Central Java Provincial regulation on food loss and waste

3. Food loss and waste roadmap with National Food Agency (Badan Pangan Nasional)

Specifically on the Central Java Provincial Regulation, Gita Pertiwi has several intervention points for policy advocacy, including but not limited to:

● developing baseline data on food loss and waste in municipalities and regencies in Central Java Province

● mapping of existing efforts to prevent with food loss and waste in Central Java Province

● shaping the regulations' objectives to ensure the inclusion of environmental justice principles

● mapping key actors in food loss and waste in Central Java Province

● co-developing short and mid-term work plan and program on food loss and waste management

● setting follow-up plans (e.g. collaborative research on food loss and waste baseline, road map for food loss and waste prevention in Central Java Province)

There are several processes required for the success of a collaborative food sharing program in order to keep the excess food suitable for consumption. This is determined by nutrient content, food safety (non-toxic and fresh), ethics, culture, and religious belief.

This program involves the following supporting elements:

Process

Gita Pertiwi established a collaborative food sharing program that implements environmental justice principles for fast action on waste and methane. The first step is conducting collaborative research on food loss and waste in Surakarta with multiple stakeholders, including universities, non-profit organizations, community groups, and local governments.

At the heart of this research is the principle to build from local knowledge and which is inclusive of local communities and actors. This principle enabled Gita Pertiwi to acquire research results that have good data quality while building buy-ins from local actors that sustain long-term sustainability of the food sharing program. Through this collaborative approach, Gita Pertiwi was able to map the characteristics of the excess food (type, amount, and source), the recipients (number, condition, and location), the distribution process, policies, and the role of various stakeholders for its sustainability.

After conducting this research, Gita Pertiwi organized workshops to share the findings, engage stakeholders, plan next steps, and gather feedback from various actors. Gita Pertiwi facilitated follow-up meetings with youth communities, culinary associations, and women groups interested in volunteering. These meetings allowed them to obtain insights and establish common vision and understanding on the issue of food loss and waste in Surakarta. As a result, they agreed to establish a food sharing community which they named Carefood. Although each community in Carefood has a different interest that drives them to contribute in this food sharing program, the uniting factor is that they all want to contribute to a social cause for the greater good.

Carefood is a food sharing community consisting of youth groups, catering associations, and healthy food processing communities. This community is supported by Gita Pertiwi. It has a management committee to ensure the smooth daily management of food sharing tasks.

Carefood's tasks are to distribute excess food by:

- managing the food sharing storefronts scattered in Surakarta

- organizing direct food sharing activities

- organizing cheap redemption activities

- managing excess food through food reprocessing especially for fresh food

- ensuring the program uses no single-use plastic packaging

- initiating new food sharing initiatives; and

- raising funds to purchase fresh food from farmers to prevent food loss

The youth communities have the most experience in terms of organizing food donation activities. They network in Carefood to develop a more sustainable food donation process by managing excess food from food donors rather than procuring donations. The culinary associations and women groups specialize in reprocessing the obtained fresh food by cooking it. They also provide the kitchen utensils that would be used.

Gita Pertiwi provides assistance to Carefood in arranging work plans. This includes a campaign for a zero waste lifestyle by reducing food waste and managing excess food, capacity building to process and package food safely, network building within food rescue initiatives, and organizing food sharing activities to distribute excess food by implementing three models of food sharing. These models will be discussed in the following section.

One key success element to the food sharing model is the co-development of an SOP for food sharing, which was organized by Gita Pertiwi. This process involved actors, such as local governments, hotels, restaurants, caterings, and Carefood. Through a series of discussions, these actors found that the greatest challenges in food sharing are: 1) food safety; and 2) distribution process. Food donors, mainly hotels, highlighted that their food sharing efforts are hindered by the issue of distributing their excess food to maintain its quality and ensure that it is safe for consumption. The SOP is key to building trust and sustainability of the program.
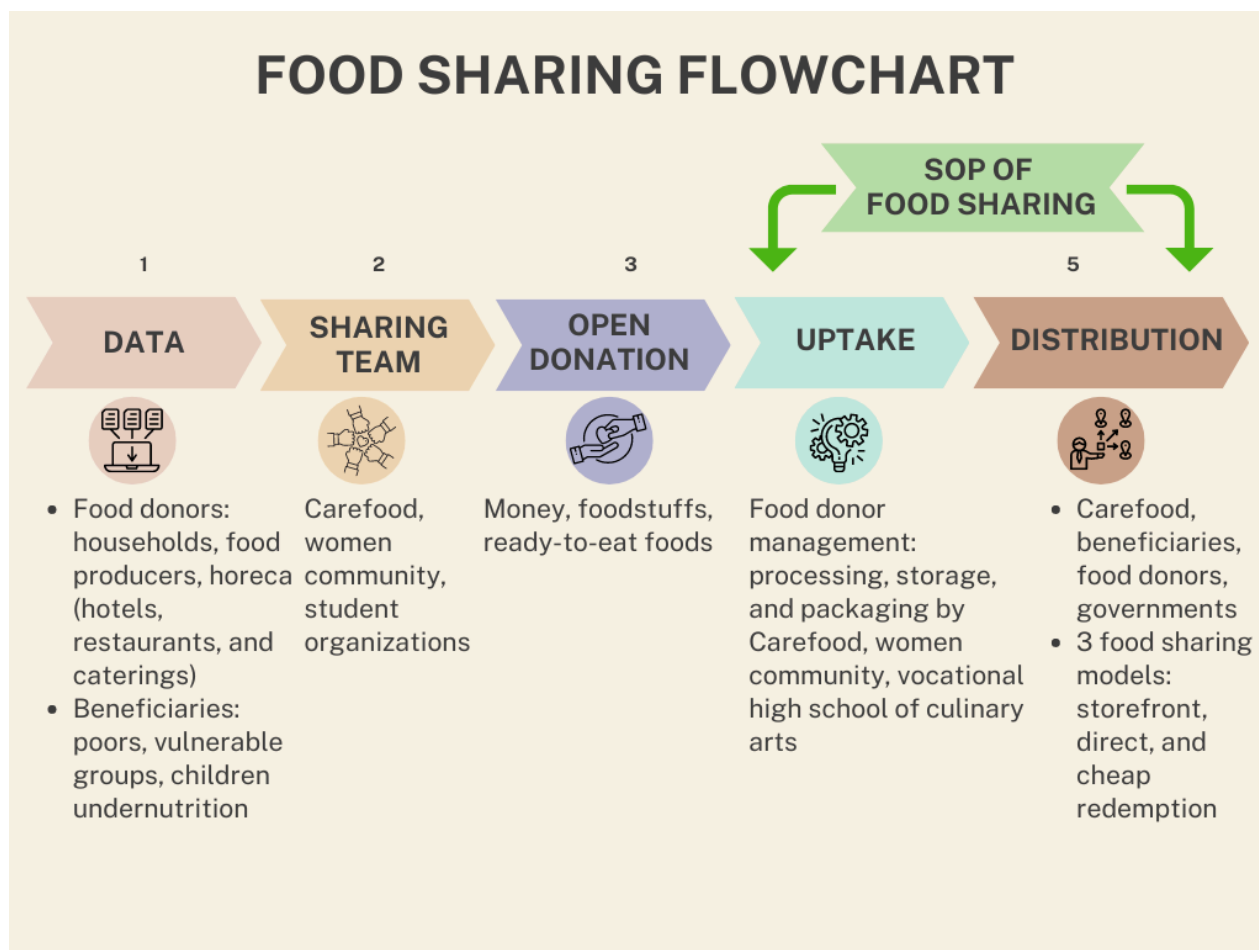
Additionally, the redistribution process is designed as a plastic-free process. It is very important to avoid swapping one waste problem with another. There are over 1800 food contact chemicals, including additives in plastic, known to migrate from food contact articles used to store, process, package, and serve foodstuffs. Especially in the

context of global plastic pollution and the Global Plastic Treaty process, increasing single-use plastic use while preventing food waste is unacceptable. Gita Pertiwi guides donors and recipients to use reusable packaging whenever available, ensuring the food remains nutritious and toxic-free.

Gita Pertiwi and Carefood take on the role of facilitator, rather than a food bank, for both donors and beneficiaries in the food sharing program. The program targets beneficiaries from vulnerable communities. This SOP also allows the distributed food to be safe, ethical, and aligned to beneficiaries' ethics and beliefs.

Donors can provide various forms of donations, including cooked food, fresh food, groceries, money, and equipment. Cooked food donations are immediately distributed. Fresh food donations are sorted, stored, and in some cases reprocessed by members of Carefood. Donation in the form of money is managed transparently through a cash flow statement. Refer to the food sharing SOP Annex 2.

This food sharing SOP can be seen in the following flowchart:

FOOD SHARING FLOWCHART

SOP OF FOOD SHARING

1	2	3		5
DATA	**SHARING TEAM**	**OPEN DONATION**	**UPTAKE**	**DISTRIBUTION**
• Food donors: households, food producers, horeca (hotels, restaurants, and caterings) • Beneficiaries: poors, vulnerable groups, children undernutrition	Carefood, women community, student organizations	Money, foodstuffs, ready-to-eat foods	Food donor management: processing, storage, and packaging by Carefood, women community, vocational high school of culinary arts	• Carefood, beneficiaries, food donors, governments • 3 food sharing models: storefront, direct, and cheap redemption

The flowchart of Standard Operating Procedures for distributing excess food. Illustrated by Gita Pertiwi

Actors

The successful implementation of this food sharing program is due to the multi-stakeholder collaboration of various local, national, and international institutions. The collaboration begins with establishing agreements with community organizations, the private sector, the government, media, food companies, and international organizations. This collaboration influences the Surakarta government in making policies supporting the distribution of excess food, using appropriate standards. In the end, the process also strengthens public trust in the collaborative food sharing program.

One of the anchors of the collaboration in the food sharing program is the local government's commitment to international agreements. In support of the policy to the food management system, Surakarta in 2020 signed the Milan Pact and the Glasgow Declaration related to the realization of Good Food for Cities. This is to support the achievement of six pillars covering food governance, sustainable diets and nutrition, social and economic justice, food production, food supply and distribution, and food waste management. The main goals of the Glasgow Declaration are urban food system policies that address the impact of climate change and reduce greenhouse gas emissions.

The actors in the program follow a penta-helix collaboration to ensure that the objectives are achieved effectively and sustainably.

- **Community groups**, particularly of youth and women, are important actors in the food sharing program. Carefood, as the program implementer, is a food sharing community from various youth organizations, culinary associations, and food-processing groups that share an enthusiasm for social and environmental issues. Given their opportunity to continue the work on environmental sustainability, the youth are tapped to take part in the program along with women who are considered a vulnerable group. The community groups assisted by Gita Pertiwi are dominated by women who are active in various social activities and in environmental conservation. Gita Pertiwi aims to further strengthen the role of women in these activities.

- **Food donors** consist of households, hotels, caterers, restaurants, and food producers. Excess food donations are distributed to coordinated beneficiaries in an institution or area, such as nursing homes, safe houses, and orphanages. This aims to cut the distribution chain, reduce the use of single-use plastics, and minimize unwanted risks such as food poisoning.

- **Government** must be involved to make the program sustainable, especially in crafting policies and regulations, facilitating multi-stakeholder communication and coordination, and providing financial resources and infrastructure.

- **Academic institutions** provide program development to make the program more innovative. Forums and academic writing make the effective dissemination of information and knowledge possible.

- **Media** help as a conduit for communication and information on the activities and progress of the program to the wider community. They encourage people to participate and get involved in the food sharing program.

Models

There are three models of the food sharing program developed based on the excess food characteristics and geographical conditions. These are: (1) Food Sharing Storefronts (Etalase Berbagi), (2) Direct Food Sharing (Berbagi Langsung), and (3) Cheap Redemption (Tebus Murah).

Food sharing at Palur Storefront

1. The Food Sharing Storefronts (Etalase Berbagi)

This food sharing model was developed during the COVID-19 pandemic by Gita Pertiwi and Carefood. The COVID-19 pandemic exposed the weakness and instability of Indonesia's food system. Restrictions during the pandemic hampered food distribution and production, resulting in uneven distribution of food supplies. A wave of employee termination caused many people to lose their jobs and reduced their purchasing power, leading to limited access to safe, nutritious, and diverse food. The pandemic also increased food and nutrition insecurity

Household food waste generation in Surakarta City during the pandemic was found to increase from 0.49 kg/household/day in 2018 to 0.73 kg/household/day in 2021. This was due to mobility restrictions outside the home. It changed food consumption behavior in households – for example, it increased the trend of cooking at home. Therefore, excess food in households, both processed and raw, was not managed properly and became food waste. .

The Food Sharing Storefronts were developed to address food issues occurring during the pandemic. food sharing activities were still carried out even with restrictions on social interactions because excess food was placed in display cases. This model is suitable for managing excess food within a limited area. The storefronts model is an area-based food sharing model. Its implementation can reduce the carbon footprint by eliminating/ reducing/ cutting the need for long hauling and distribution processes of excess food.

This model is implemented in three stages:

- **Planning**: includes determining the location of the food display case. The location must be accessible and strategic to both food donors and beneficiaries. Ideal locations are places of worship, urban village offices, residential areas, community gathering spaces, and public places. During the planning stage, a food display case manager is chosen to implement food sharing activities at the food display case, monitor the quality and edibility of the shared food, and calculate the amount of shared food. Food display case managers include Carefood members, residents, and the head of the neighborhood association (Rukun Tetangga and Rukun Warga).

- **Implementation**: Activities are carried out based on the availability of excess food from the donors and the location. Food displays in mosques are used for Friday food sharing activities, while those in communities are used to share crops from urban farming groups. Food displays in residential areas, meanwhile, are used every day for 24 hours from local residents from households, food vendors and vegetable traders. Processed food donations are distributed within 24 hours to maintain quality and safety. There are also discussions to decide the type of excess food that can be donated during the implementation stage. Excess food donors can distribute a variety of food ranging from raw food (vegetables and fruit), processed food (wrapped rice, bread, snacks, and drinks), and groceries (rice, eggs, cooking oil, noodles, flour).

- **Monitoring and Evaluation**: This stage includes checking the condition of the food, and the condition of the food display case (whether it is damaged or in a good and clean condition). The manager, who has been trained in food quality and safety, carries out the monitoring. Gita Pertiwi and Carefood teams conduct monitoring once a month to check the condition of the food display case. It is cleaned and, if needed, repaired. The food display case cleaning is carried out by Carefood. Gita Pertiwi and Carefood coordinate with the managers to report the results of the monitoring. If food sharing activities at a food display case are not actively carried out, the food display case will be relocated to another location. Gita Pertiwi, Carefood, and the manager decide where the food display case will be relocated.

There are currently 12 Food Display Cases spread across Surakarta, Sukoharjo Regency, and Boyolali Regency. See the complete list on Annex 3.
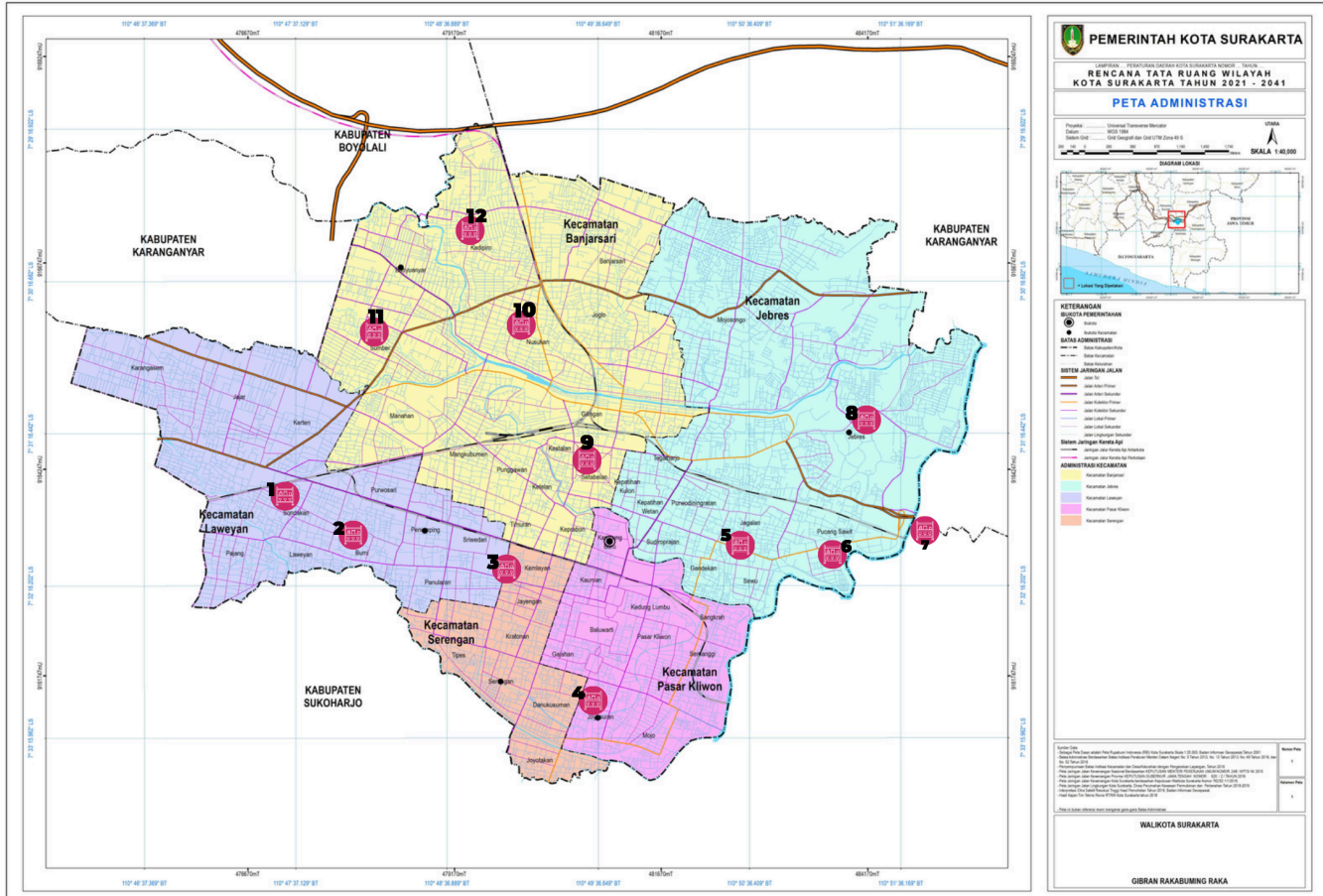
Distribution map of The Food Display Case. Source: Gita Pertiwi documentation

Distribution of rice cake donation at Yayasan Laras Utami, a nursing home for people with mental illness

2. The Direct Food Sharing (Berbagi Langsung)

The Direct Food Sharing model, developed back in 2019, is used to distribute excess food in large quantities in the form of ready-to-eat or processed food and raw food. Food donors are food producers, hotels, restaurants, caterers, bakeries, food vendors, and individuals. Beneficiaries of this model are coordinated groups such as orphanages, safe houses for elderly people, people with mental illnesses, children, market workers, waste pickers, etc.

Gita Pertiwi works with [FoodCycle Indonesia](), a local food bank organization, to distribute excess food. Excess food are products that do not pass the producers' quality control but are still safe and fit to eat. Examples are bread that is smaller in size and burnt on the edges, or frozen food that is smaller in size and broken.

Gita Pertiwi also works with [Carefood](), in synergy with the government, to gain support and take part in the programs. In 2022, the distribution of Ramadan Package donations amounted to 15,000 packages of vegetables, sardines, and seasonings distributed to beneficiaries in Surakarta City, Sragen Regency, and Karanganyar Regency. Gita Pertiwi collaborated with the government and government agencies such as the Food Security and Agriculture Department of Surakarta (Dinas Ketahanan Pangan dan Pertanian Surakarta), Social Affair Agency of Sragen Regency (Dinas Sosial Kabupaten Sragen), Amil Zakat National Agency of Indonesia (Badan Amil Zakat Nasional or BAZNAS), Amil Zakat National Agency of Surakarta, and Amil Zakat National Agency of Karanganyar which provided space to package the food donations. They also helped in the distribution.

Direct food sharing for people with mental illness at Griya PMI Peduli safe house

Individual donors at Griya Peduli Red Cross Indonesia of Surakarta

Frozen food donation distribution for waste pickers at Putri Cempo landfill

In 2023, Gita Pertiwi received 1.5 tons of frozen food donations from a factory located in Boyolali Regency. Gita Pertiwi collaborated with the Regional Development Planning Agency of Surakarta (Badan Perencanaan dan Pembangunan Daerah/Bappeda), the Food Security and Agriculture Department of Surakarta (Dinas Ketahanan Pangan dan Pertanian), Trade Department of Surakarta (Dinas Perdagangan), Environmental Department of Surakarta (Dinas Lingkungan Hidup), and Griya PMI Peduli as a civil society institution that provided support to transport the donations from the factory to the beneficiaries. The beneficiaries were Putri Cempo landfill waste pickers, the street sweepers who work for the Surakarta Environmental Agency, and safe houses for elderly people, people with mental illnesses, and children.

Vegetable donation distribution for waste pickers at Putri Cempo landfill

Waste picker of Putri Cempo landfill is one of the beneficiaries in this food sharing program. It is an organized vulnerable group affected by waste policy and projects of the government. Since 2023, the government of Surakarta has operated a Waste-to-Energy Incinerator at Putri Cempo landfill, affecting waste pickers' income. The incinerator operations also put the health of the waste pickers at risk as it produces toxic air emission and ash. This project was supported by Asian Development Bank (ADB) that developed the pre-feasibility study and China Construction Bank (CCB), which provided loans amounting to 15 million USD.

Gita Pertiwi and Carefood distributed meat from Qurbani for Eid Al-Adha celebration in June 2024 to the community of waste pickers in Putri Cempo landfill. The meat was cooked and eaten together. They invited waste pickers, the local government, and Gita Pertiwi in their regular meeting to enjoy the meat. Here, waste pickers received information about waste policy and project updates from the local government. It was clear that the food sharing program strengthened organizing among the wastepickers of Putri Cempo landfill.

In mid-August 2024, Gita Pertiwi and Carefood distributed fresh vegetables donations from farmers of Salatiga District to the waste picker of Putri Cempo landfill, helping waste pickers reduce their food expenditure.

Gita Pertiwi gets meaningful engagement from the wastepickers of Putri Cempo landfill by conducting food sharing. The waste pickers started trusting in Gita Pertiwi as they were shown their disclosure of information about the operational waste-to-energy incinerator and its impact on them. They also invited Gita Pertiwi to their regular meetings.

SIDE BAR STORY: Food sharing built on trust

Every Tuesdays and Fridays, Gita Pertiwi, through the Bread Rescue Project, collaborates with a bread factory in Surakarta to distribute excess bread.

The beneficiaries are safe houses and nursing homes for elderly people, mental disorder residents, and toddlers of Integrated Child Development Services or ICDS (Pos Pelayanan Terpadu Anak or Posyandu). The bread donations are distributed to beneficiaries by Gita Pertiwi and Carefood. In some instances, beneficiaries from safe houses, nursing homes, orphanages, and ICDS take the bread voluntarily from the factory, showing the trust built between Gita Pertiwi and the community.

The collaborative food sharing based on trust also occurred in the distribution of Lontong Sayur donation, an Indonesian rice cake with vegetable soup during Ramadan this year. Five hundred ready-to-consume packages of Lontong Sayur were distributed to orphanages, nursing homes, safe houses for mental disorder residents, the elderly, orphans, and former female sex workers. Some representatives or officers from nursing homes were willing to pick up voluntarily from the catering location where the vegetable rice cake (ketupat) was cooked. They collected the food donations using their vehicles and brought food containers to reduce the use of single-use plastics in the food sharing activities.

The Food Sharing Directly model is also applied to distribute excess food from restaurants, caterers, and individuals at any time. Whenever restaurants and caterers have excess food available for food sharing, they can inform Gita Pertiwi to redistribute it. Gita Pertiwi then coordinates with Carefood to collect, handle, and distribute the food donations. The distribution of Nasi Liwet donations, an Indonesian traditional dish in May 2024 from Griya Dahareco Restaurant in Surakarta to residents around Tipes Urban Village, Serengan District, Surakarta where Info Cegatan Solo or ICS (traffic information community in Surakarta) gathered. In addition, Griya Dahareco Restaurant also lends food containers and cutlery to reduce the use of single-use plastics in this food sharing activity. Excess food donations also come from individuals or private gatherings such as weddings.

3. The Cheap Redemption (Tebus Murah)

The Cheap Redemption model is carried out to build solidarity and empathy between producers and consumers. When the price of food went down during the COVID-19 pandemic, farmer groups could not sell their crops while consumers in cities had difficulty gaining access to food due to mobility restrictions. Cheap Redemption came in, shortening the distribution chain and therefore making food more affordable. This model is also carried out when there is excess food in large quantities.

Through the Cheap Redemption system, people are able to sell food at lower prices by bridging food producers producing lower-quality products (damaged products during harvesting and storage) to low-income consumers. The Cheap Redemption model can be used to manage excess food, thus reducing food loss. It can be implemented in cities and suburban areas.

Carefood also receives monetary donations to purchase and resell food, preventing food insecurity during times of inflation.

Impact

1. Waste diversion from landfills

The collaborative action of sharing food through the three models developed by Gita Pertiwi has prevented 63,110.57 kg of excess food from becoming food waste from 2020 to 2024 (May).
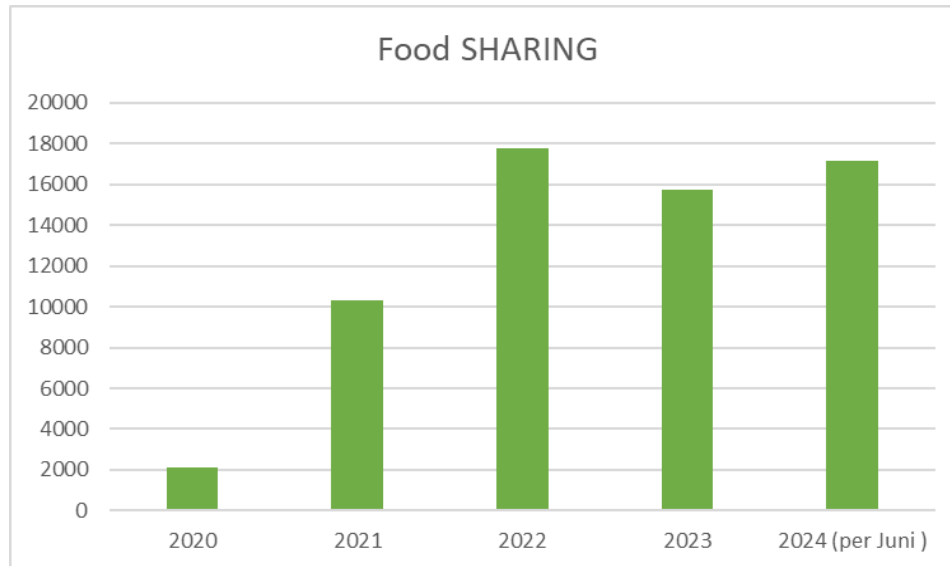
Bar chart for the quantity of distributed food by three food sharing models, Illustrated by Gita Pertiwi

The amount of distributed food from 2020 to 2021 increased drastically during the COVID-19 pandemic, when food sharing activities became a trend in Indonesia and kept growing throughout the following years. In addition, Carefood was newly formed and active in initiating food sharing activities, such as the Cheap Redemption and the Food Sharing Storefronts.

The amount of shared excess food peaked in 2022 when the Direct Food Sharing model distributed 15,000 Ramadan Packages or as much as 7,625 kg to beneficiaries in Surakarta City, Karanganyar Regency, and Sragen Regency. Food sharing activities through the storefront model ran effectively because the community had been educated from the experience of sharing excess food during the COVID-19 pandemic two years earlier. Education related to excess food management through food sharing encouraged caterers, restaurants, and individuals to participate. The amount of distributed food, however, decreased in 2023 because Carefood members were less active and were by then focused on their schools or jobs.

In 2024, Gita Pertiwi and Carefood are able to carry out food sharing activities more sustainably by raising donations every month and improving management of the storefronts. In addition, Gita Pertiwi is collaborating with the Food Security Department of Central Java Province (Dinas Ketahanan Pangan Provinsi Jawa Tengah) and the National Food Agency of Indonesia (Badan Pangan Nasional Indonesia) for the Stop Food Loss and Food Waste Programme (Program Stop Boros Pangan). Collaborating with these two government institutions increases the effectiveness of the program.

Excess food that is not fit to eat or food waste is used for animal feed in the community. Gita Pertiwi assists and facilitates five groups in Surakarta to process five tons of food waste per month. These groups are the Gajah Putih Waste Bank of Karangasem (Bank Sampah Gajah Putih Karangasem) using food waste for maggot cultivation (Hermetia illuciens L), the Ngudi Makmur Women Farmer Group of Joglo (Kelompok Wanita Tani Ngudi Makmur Joglo) using food waste for maggot cultivation, chicken, and catfish feed, the Dahlia IX Women's Farmer Group of Pucangsawit (Kelompok Wanita Tani Dahlia IX Pucangsawit) using organic waste for superworm (Zophobas morio) breeding, the Mojo Makmur Integrated Waste Processing Site of Jebres (Tempat Pengolahan Sampah Terpadu Mojo Makmur Jebres) using food waste for maggot cultivation, liquid organic fertilizer, and poultry feed, and Taman Winasis of Food Security and Agriculture Department of Surakarta (Taman Winasis Dinas Ketahanan Pangan dan Pertanian Kota Surakarta) using food waste for maggot cultivation. These groups process the food waste from households, markets, food stalls, vegetable stalls, fruit salad sellers, and hotels. Taman Winasis has undertaken a Memorandum of Understanding with one of the hotels in Surakarta to process the food waste from the hotel.

2. Economic Impact

The collaborative food sharing prevents the excess food from food waste. It is equivalent to IDR 15,000/kg (USD 1/kg) of excess food. The food waste is managed by a circular economy. It is equivalent to IDR 1,000/kg (USD 0,067/kg) of food waste. The detail of economic value of food rescue and food waste management as follow:

a. Distributed excess foods: IDR 15,000/kg (USD 1/kg) x 63,110.57 kg = IDR 946,658,550 (USD 63,110.57)
b. Managed food waste: IDR 1000/kg (USD 0.067/kg) x 95,785.5 Kg = IDR 95,785,500 (USD 6,385.7)

Results of the Utilization of Food Waste in community groups:

Group Name	Waste Utilization	Amount	Price	Total Per Month	Total Per Year
Gajah Putih Waste Bank	Maggot (Hermetia illuciens L)	300 kg/month	IDR 7.000 (USD 0.467)	IDR 2.100.000 (USD 140)	IDR 25.200.000 (USD 1,680)
	Kasgot (maggot residue)	30 kg/month	IDR 1.000 (USD 0.067)	IDR 30.000 (USD 2)	IDR 360.000 (USD 24)
Dahlia Women's Farmer Group	Superworm (Zophobas morio)	30 kg/month	IDR 50.000 (USD 3.3)	IDR 1.500.000 (USD 100)	IDR 18.000.000 (USD 1,200)
Taman Winasis	Maggot (Hermetia illuciens L)	300 kg/month	IDR 7.000 (USD 0.467)	IDR 2.100.000 (USD 140)	IDR 25.200.000 (USD 1,680)
	Kasgot (maggot residue)	30 kg/month	IDR 1.000 (USD 0.067)	IDR 30.000 (USD 2)	IDR 360.000 (USD 24)
Ngudi Makmur Women's Farmer Group	Maggot (Hermetia illuciens L)	57 kg/month	IDR 7.000 (USD 0.467)	IDR 399.000 (USD 26.6)	IDR 4.788.000 (USD 319.2)
	Kasgot (maggot residue)	5,7 kg/month	IDR 1.000 (USD 0.067)	IDR 57.000 (USD 3.8)	IDR 684.000 (USD 45.6)
Mojo Makmur Integrated Waste Processing Site	Maggot (Hermetia illuciens L)	70 kg/month	IDR 7.000 (USD 0.467)	IDR 490.000 (USD 32.67)	IDR 5.880.000 (USD 392)
	Kasgot (maggot residue)	7 kg/month	IDR 1.000 (USD 0.067)	IDR 7.000 (USD 0.467)	IDR 84.000 (USD 5.6)
Total per year					IDR 80.556.000 (USD 5,370.4)
Total in 5-year					IDR 402.780.000 (USD 26,852)

Excess food has operational costs: every month, it is IDR 600,000 (USD 40), in a year, IDR 7,200,000 (USD 480), and for five years, IDR 36,000,000 (USD 2,400). Transporting food waste for three days entails 5 liters of gasoline for IDR 50,000 (USD 3.3); the monthly cost is IDR 500,000 (USD 33.3); the yearly cost is IDR 6,000,000 (USD 400). For the past five years, this has cost IDR 30,000,000 (USD 2,000).

The economic impact of the program, especially on the beneficiaries, is evident. Excess food distribution is one of the meal sources for vulnerable groups, such as low-income people, shelters for the elderly and those with mental illness, and the poor. Every month, collaborative food sharing can save an average of 2,863 kg of excess food. The price of the excess food is estimated at IDR 15,000/kg (USD 1/kg). Thus, these vulnerable groups are able to save as much as Rp42,945,000 (USD 2,863) every month that they would have used to buy food.

3. Environmental Impact

Collaborative food sharing affects the environment by contributing to climate change mitigation. It reduces methane gas emissions produced from food waste. According to the Ministry of Environment and Forestry of Indonesia (2021), every ton of solid food waste can produce 50 kg of methane gas (CH_4). Therefore, this program can mitigate 143.15 kg (2,863/1,000 X 50) of methane gas every month.

Moreover, collaborative food sharing can reduce the generation of the greenhouse gas CO_2. Every kg of organic waste can produce 700g of CO_2 gas so this program can mitigate 2,863 kg x 700g = 2,004,100 kg of CO_2 every month. The reduction in methane and CO_2 gas production helps mitigate climate change.

4. Socio-cultural Impact

Aside from the environmental impact, the collaborative food sharing program also has socio-cultural impact.

This program is able to increase social awareness on food surplus and food waste, and thus change people's food consumption habits. The amount of distributed excess food is directly linked to the enthusiasm of the community to share their excess food in order to prevent food waste. The trend of food sharing tends to increase up to 2 times every year as evidenced by the food sharing data. People are able to access the Carefood hotline when they want to donate their excess food. They also can share their food donation in the storefronts. Hotels, restaurants, and caterers also participate in this system.

Surakarta is also a tourism hub with events happening almost every weekend, resulting in excess food produced by hotels, restaurants, and catering services. Through this program, they are able to donate their excess food to distribute to safe houses for orphans, the elderly, and mentally disordered residents. In addition, food sharing storefronts are awaited by the beneficiaries consisting of religious groups, waste pickers, pedicab and online drivers (both motorcycle and taxi) to save on their food costs. Collaborative food sharing is relevant to SDG #2 or zero hunger.

Recommendations

To keep this collaborative food sharing program sustainable, Gita Pertiwi puts forth several general recommendations:

1. Establish a tiered **legal umbrella** from the central government to local governments related to the collaborative food sharing system. This covers policies, programs, and budgeting.

2. Strengthen the **synergy** among government institutions in order to achieve a city-wide implementation. Food loss and waste is a cross-sectoral issue, often shared among various ministries and agencies. Often, they are trapped in sectoral ego which only hinder the full potential of this program and may create unintentional consequences. For example, there are occurrences where food waste prevention programs result in the increase of single-use plastic packaging usage for food distribution. This happens because the program was not developed in a holistic perspective and cross-sectoral collaboration. A common understanding, common vision, and trust must be developed among government institutions while involving all stakeholders. It entails mapping of the specific roles for each stakeholder and government institution to ensure the lasting success of the program.

3. Establish government-led **institutional support** to ensure the sustainability of collaborative food sharing programs. Currently, this program is driven and sustained by volunteers' efforts. This is unsustainable as volunteers may have jobs or other businesses, thus the program continuity is interrupted. It is critical for the government to institutionalize this program as it will ensure financial sustainability, professional operation, standards enforcement regarding food safety, holistic perspective, and a city-wide implementation as a public service.

4. **Digitalize food sharing programs** to save more food from being wasted. This can be done by creating a digital application that allows anyone to upload excess food (type, amount, condition, and location) and recipients can immediately access it. This is critical because the current implementation requires tremendous resources, both time and manpower, to coordinate the food distribution process. By investing in digitalization of this program and involvement of all stakeholders in the development, costs will be reduced and the upscaling process will be hastened.

In addition, there are several specific recommendations for specific government actors:

1. For the **National Development Planning of Indonesia** (Bappenas): Revision of Presidential Regulation Number 35/2018 on the Acceleration of the Development of Waste-to-Energy Processing Installations Based on Environmentally Friendly Technology. Gita Pertiwi recommends the national government to cancel this regulation as it contradicts the waste hierarchy, hindering efforts and progressive policies on food loss and waste prevention, among other upstream measures in the hierarchy. It also prevents existing financial resources, especially the highly limited local government budget, from supporting best practices and successful projects such as the food sharing program in Solo.

2. For the **National Food Agency** (Bapanas): Implementation of Stop Wasteful Food Movement in all provinces in Indonesia. Establishing a food sharing institution.

3. For the **Local Government**: Crafting of policies on excess food management for hotels, restaurants and caterers to distribute to foundations or orphanages. Provision of infrastructure support in the distribution of excess food in the form of transportation, tools, and storage areas. Implementation of campaign and education to community groups regarding excess food prevention and excess food management.

4. For the **Food and Drug Monitoring Agency** (BPOM): Development of guidelines and standards related to the management of excess food so that the food is safe for consumption, starting from sorting, through storage and distribution. Issuance of regulations on excess food management to maintain the quality of excess food distributed. Conduct of education and training for service providers and food businesses such as hotels, restaurants and caterers in managing excess food so that the excess food distributed complies with food safety standards.

Annex 1. About Gita Pertiwi

Gita Pertiwi is a non-governmental organization (NGO) focusing on environmental conservation and community development activities. The organization was established on December 21, 1991, and currently is based in Surakarta, Central Java Province. The organization envisions a more just social order and environmental sustainability based on the values of justice, democratic participation, equality, accountability, and openness for all people without considering ethnicity, race, class, religion, and gender. Gita Pertiwi in particular has a mission to reduce the exploitation of marginalized groups, especially women, children and other vulnerable groups, while reducing environmental degradation.

Its vision and mission have four strategies: empowerment, networking, policy advocacy, and learning. The organization program and activities are geared towards empowering and developing critical attitudes of the community from the environmental and social justice lens. Currently, they run two main programs, namely Sustainable Agriculture and Sustainable City.

Gita Pertiwi collaborates with national and international networks to make a more significant impact on the issues the organization addresses. It is also a member of the Alliance for Zero Waste Indonesia (AZWI), Food Sovereignty for Indonesia (KRKP), Indonesia Organic Alliance (AOI), Pesticide Action Network Indonesia, International Pollution Elimination Network (IPEN), Global Alliance for Incinerator Alternatives (GAIA), and Pesticide Action Network (PAN), Break Free from Plastic (BFFP), INVID International NGO Forum on Indonesian Development (INFID).

	Number of SOP	
Carefood	Date of arrangement	April 2020
	Date of revision	April 2020
	Date of validation	April 2020
	Confirmed by: CAREFOOD Ajhi Wicaksono (Chairman)	

Work Unit: _____		Name of SOP:	Food Sharing

No	Activity/Procedure Description	Standard Quality			Information
		Condition/Completeness	Time	Output	
1.	Starting				
2.	Receiving various donations of excess food types such as cooked food, raw food, groceries, fresh money, and equipment (facilities and infrastructure from donor)	The cooked and raw food must be fit for consumption and qualified for health requirements, appropriate money, and equipment. Stationery, smartphone, computer, consent form, donor identity	10 minutes	Type of donation, consent form, and donor identity	Regular recording and reporting of each type of donation (food, money)
3.	Managing raw food and grocery donations in the community's kitchen (supply/food bank) CAREFOOD	All food received is cleaned, sorted, separated, and stored in the appropriate storage equipment. Food recipients must wear full personal protective equipment (PPE) according to health protocols.	N/A	Type of donation, consent form, donor identity, and food supply	First In First Out (FIFO) principle must be applied in food supply management
4.	Picking up all the donations	Minimum 30 servings of food	N/A	All the donations	Collected in good condition
5.	Conducting multi stakeholder collaboration and agreements	Stationary, collaboration document	15 minutes	The minutes of collaboration	Receive a handover sign, and commit to sharing food
6.	Distributing the donations	Type of donations and proof of agreement, recipient form	N/A	The donation is received by the beneficiaries, recipient database	Low-income people
7.	Activity report on food sharing		10 minutes	Recipient database, result report	
8.	Completed				Documents and archives

Annex 3. The Food Display Case Storefront List and Location

No	Name of the Store	Address Location
1	Al-Amin Mosque Storefront	CQPW+929, Parang Baris Street, Sondakan, Laweyan District, Surakarta City, Central Java Province 57147
2	Tegalsari Mosque Storefront	Dr. Wahidin Street 34, Bumi, Laweyan District, Surakarta City, Central Java Province 57149
3	Kemlayan Storefront	Sukoreno Street 32, Kemlayan, Serengan District, Surakarta City, Central Java Province 57151
4	Community Based Disaster Preparedness (SIBAT) of Joyosuran Storefront	CR6H+9W5, Semanggi, Pasar Kliwon District, Surakarta City, Central Java Province 57116
5	Food Security and Agriculture Department of Surakarta Storefront	Jagalan, Jebres District, Surakarta City, Central Java Province 57128
6	Pucangsawit Storefront	CVJ4+FHV, Pucangsawit, Jebres District, Surakarta City, Central Java Province 57125
7	Palur Storefront	CVHF+P49, Kantil Street 2, Palur Kulon, Palur, Mojolaban District, Sukoharjo Regency, Central Java Province 57554
8	Al Khoir Mosque Storefront	Gulon Street 21, Jebres, Kec. Jebres, Kota Surakarta, Jawa Tengah 57126
9	Legi Traditional Market Storefront	Letjen S. Parman Street 85, Setabelan, Banjarsari District, Surakarta City, Central Java Province 57133
10	Praon Storefront	FR37+FP8, Nusukan, Banjarsari District, Surakarta City, Central Java Province 57135
11	Case Rohmah Mosque Storefront	Kahuripan Utama Street 14, Sumber, Banjarsari District, Surakarta City, Central Java Province 57138
12	Al Ikhlas Mosque Storefront	Bromo Street 2, Kadipiro, Banjarsari District, Surakarta City, Central Java province 57136

Acknowledgements

THE EDITORIAL TEAM

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NOURISHING COMMUNITIES: Gita Pertiwi's Justice-Centered Food Sharing Model in Surakarta (Indonesia)

The power of local communities in preventing food waste and delivering climate actions