



TROPENTAG 2023
Berlin, Germany - Sept 20-22

From Waste to Relief: Unlocking the Potential for Food Rescue in Low- and Middle-Income Countries

Susanne Bodach¹, Aruni Narmada Athukorala¹ and Hasintha Wickramaarachchi¹

Introduction

- Food rescue is the **practice of salvaging and redistributing edible food** that would otherwise go to waste.
- About one-third of all food** produced worldwide, goes to waste, while millions of people struggle with hunger and food insecurity (FAO, 2011).
- Food rescue is an important way **to address both food waste and food insecurity**.
- Food rescue is on the **second highest tier of the food waste recovery hierarchy** and a simple but powerful way to reduce waste, fight hunger, and promote sustainability (Figure 1).
- The **objective** of the study was to **develop recommendations for promoting food rescue** in low- and middle-income countries (LMICs).

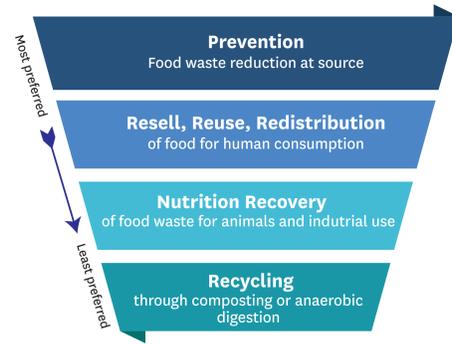


Figure 1: Food waste recovery hierarchy (adapted from Senanayake et al., 2021)

Materials and Methods

- A comprehensive **literature review** was conducted, encompassing academic sources and grey literature, focusing on existing food rescue organizations and their activities.
- The **analysis of the literature** served as a foundation for understanding best practices and challenges in food rescue efforts.
- A **cross-country assessment** was conducted to (i) identify critical success factors for an enabling environment that addresses the obstacles to donating surplus food and (ii) to understand key differences in the food rescue system governance and regulatory framework.
- To understand approaches to address these challenges, **surplus food safety regulations** of the UK, India, Philippines, Malaysia, and Singapore were assessed in more detail.

Results

The Food Rescue System

A food rescue system refers to a **coordinated and organized network** of activities, processes, and stakeholders aimed at **recovering edible surplus food** that would otherwise go to waste and redistributing it to individuals and communities in need (see Figure 2).

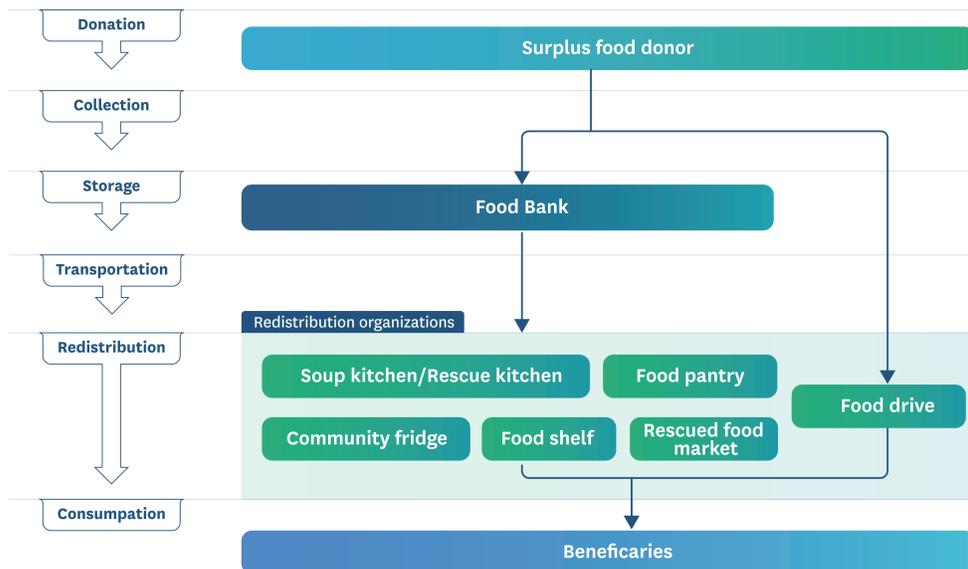


Figure 2: Food rescue system with its stages and key stakeholder

Challenges in Food Rescue

Critical challenges in food rescue are linked to (i) regulations, (ii) logistic and infrastructure, (iii) food safety, (iv) awareness and cultural barriers, (v) limited funding and resources, and (vi) inadequate partnerships (see figure 3).

Overcoming these challenges require multifaceted strategies considering regulatory, economic, logistical, and cultural aspects.

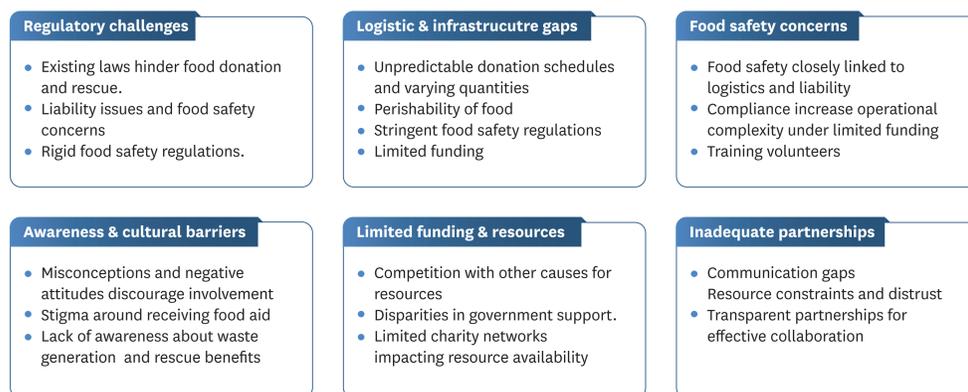


Figure 3: Key challenges in the food rescue system (Patel et al. 2021; Walters et al. 2021; Chen & Chen 2018; Franco & Cicatiello 2021; Kobayashi et al. 2018; Baglioni et al. 2017; Bierma et al., 2019; GFN, 2018)

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Policies and Regulations promoting Food Rescue

Policies and regulations can advance food rescue efforts by **targeting food waste reduction** or promoting an **enabling environment for surplus food donation** (Table 1).

Table 1: Policies and regulations promoting food rescue (adapted from Authors, Senanayake 2021; FLPC & The GFN Network 2023)

Food waste reduction	Surplus food donation
<ul style="list-style-type: none"> National Law or policy on food waste Setting food waste reduction targets and monitor progress Encourage businesses to report food waste Landfill ban for food waste Food waste tax Subsidies or grants for research on food waste 	<ul style="list-style-type: none"> Liability protection for food donors Improved date labelling Food safety guidelines for surplus food donation Tax incentives for surplus food donation Eliminate tax barriers to donation Establish food rescue networks and partnerships Government grants and incentives

Results and Discussion

Surplus Food Safety Regulations

Food safety is an important concern during food rescue and redistribution that must be addressed by regulations or guidelines. Figure 4 summarizes **surplus food safety issues** regulated in UK, India, Singapore, Philippines, and Malaysia. **United Kingdom (UK) has the most comprehensive regulatory framework** for surplus food safety, followed by Singapore, India, Philippines, and Malaysia.

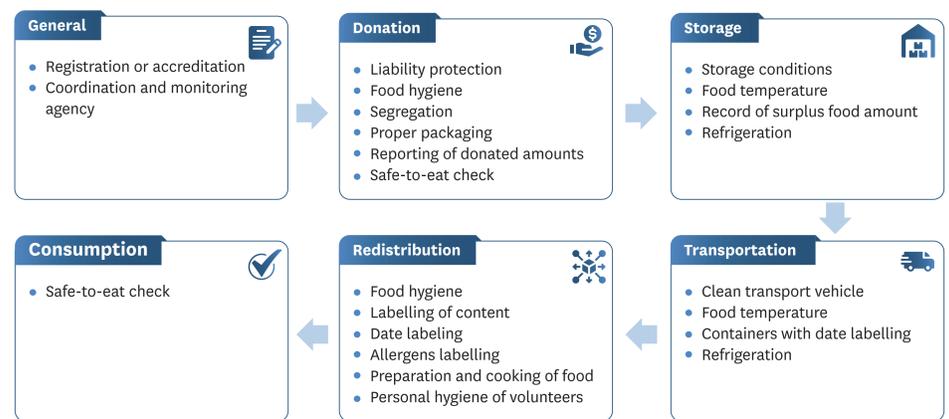


Figure 4: Existing surplus food safety regulation in selected countries along the food rescue value chain (based on FLPC and GFN 2023; Baglioni et al. 2017; GFN 2018; Government of Malaysia 2020; Republic of the Philippines 2009; Food Safety and Standards Authority of India 2019)

Food Safety Guidelines for LMICs

A set of **minimum food safety guidelines** assigning specific responsibilities to the key parties involved in the process to guarantee the safety and quality of donated food (Table 2).

Table 2: Minimum surplus food safety guidelines with responsibilities

Food safety issue	Surplus food donor	Food bank	Surplus food redistributor	Beneficiary
Food hygiene	✓	✓	✓	
Segregation in perishable & non-perishable food	✓			
Proper packaging	✓			
Labelling for non-labeled and perishable food		✓	✓	
Storage conditions incl. refrigeration, if required		✓	✓	
Clean transport vehicle		✓	✓	
Labelling of content, if required		✓	✓	
Safe food handling training		✓	✓	
Personal hygiene of volunteers		✓	✓	
Safe-to-eat check				✓

Partnership contracts

The following contracts and agreements are evaluated as minimum arrangements for a successful food rescue stakeholder coordination:

- Confidentiality agreement between surplus food donor and food bank or food redistribution organization: Ensures donor information is kept private to protect donor privacy and encourage donations.
- Surplus food supplying and receiving checklist: Include food items which can be donated or not depending on the organizations capacity and infrastructure to ensure safe food redistribution.
- Partnership contract between food bank and food redistribution organization: Clarifies roles and responsibility to ensure that food is distributed in a fair and efficient manner
- Food safety guidelines for food banks: Ensure safe handling, storage, and distribution of surplus food in food banks to prevent contamination and protect recipients' health.
- Surplus food safety handling & transportation guidelines for all food rescue organizations: Provides general safety instructions for surplus food handling and transportation in all kind of food rescue organizations.

Conclusion

- Food rescue can play a pivotal role in addressing food waste and food insecurity, particularly in LMICs.
- Strong partnerships between food rescue organizations, food businesses, government agencies, and other stakeholders are required.
- Minimum surplus food safety guidelines and templates for partnership contracts and agreements were developed to facilitate a successful and safe food rescue stakeholder coordination.

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