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Food banks as a social innovation initiative: A comparison of social enterprise models between Indonesia and Malaysia

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ABSTRACT

The rate of food loss and waste in Indonesia and Malaysia is increasing in line with the pace of consumption. However, hunger persists and must be addressed. Food banks are charitable organizations that donate extra food to those who cannot afford to buy it. The purpose of this study is to examine the business models and external environment of food banks, as well as to create recommendations for developing and optimizing food banks in Indonesia. The study used a qualitative method. The research sample was chosen to represent both countries. The social enterprise model canvas was used to evaluate the business model typology of a social organization. The findings revealed that there were many types of food bank institutions, but there was no political, economic, or legal support for the development of a food bank. The food banks' business models required the establishment of policy frameworks and legal protection for food banks, models for food bank institutions, capacity building for food bank institutions and their managers, and support for social culture through various initiatives. Food banks in both countries had different strategy to develop their social innovation initiative.

1. Introduction

Food loss and waste is an important worldwide problem. Some estimates suggest that as much as one third of the food produced for human consumption is lost or wasted every year, resulting in damage worth nearly US $ 750 billion per annum (Koirala et al., 2022). In third world countries, post-harvest losses can reach 50 % or more. Food loss and waste take place at different stages. During post-harvest handling and storage, food is lost or wasted 54 % of the time (Ali et al., 2021). The remaining 46 % takes place during processing, distribution & consumption. Food waste has severe environmental offshoots, releasing greenhouse gases into the atmosphere and contributing to global warming (You et al., 2022; Ruggieri et al., 2020). Yet despite the scale of this problem, very few countries mention food loss and waste in their commitments to combat climate change. Globally, the amount of food wasted is mind-boggling. About 1.3 billion tons are thrown away every year. Food loss and waste is an unsustainable situation. It requires action to reduce food lost, lower the cost of production and lessen environmental impact.

In ASEAN (Association of Southeast Asian Nations), both Indonesia and Malaysia have considerable issues in terms of food loss and waste. Indonesia is the world's second greatest producer of food waste, after only Saudi Arabia (Luna and Suryana, 2022). The country disposes of food waste at a significant rate, with forecasts predicting that without action, it might reach 344 kg/capita/year by 2045 (Munir, 2023). The growing population and the effects of climate change intensify the problem (Venessa and Aripradono, 2023). Dumping or landfilling is the most popular method of disposing of food waste in Indonesia, which contributes to climate change (Simamora et al., 2022). Malaysia, on the other hand, is actively seeking new solutions, as it is the country's second-largest source of solid trash, accounting for approximately 32 % of total waste created (Wafi and Tumiran, 2022). Malaysians produce more plant-based food waste than animal-based food waste, and while there is widespread knowledge of the causes and consequences of food waste, there is little action to reduce it (Phooi et al., 2022). According to a Malaysian study, food waste is a significant concern in homes, and

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there is a need for product design solutions to address this issue (Kamil et al., 2022). Cafeterias and casual dining restaurants contribute to food waste creation and have a substantial environmental impact, notably in terms of carbon emissions (Ab Azis et al., 2022). The household sector is the primary source of food waste in both countries.

Despite efforts to fulfill the United Nations' Sustainable Development Goals (SDGs), food insecurity and hunger remain important challenges in Indonesia and Malaysia. According to the United Nations, 840 million people would be food insecure by 2030. In Indonesia, the prevalence of food insecurity increased by 0.71 % from 7.63 % in 2019 to 8.34 % in 2020 (BPS 2021). Aside from that, Indonesia ranks third in Southeast Asia in terms of hunger, with an index score of 18, indicating a moderate level (GHI 2021). The number of Indonesian people experiencing hunger is reported to have reached 22 million. In the context of Malaysia, a minor increase in the hunger index from 10.9 in 2014–12.5 in 2022 was reported, implying that Malaysians faced an increase in food insecurity in 2022 (Malaysia Global Hunger Index, 2023). As a result, both countries require an innovative strategy to combat food waste and loss.

Food banks are one type of social innovation associated with food loss and waste and the delivery of food sources to underserved groups. Social innovation is defined as "a novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals" (Phills et al.,2008). Since the process and result of social innovation is the development of new solutions to societal problems from the cooperation of various sectors, such as communities, businesses, and governments (Janik et al., 2021). Despite the fact that social innovation must be the ultimate objective of any strategy, interest in social innovation has been growing. A recognized kind of social innovation, social enterprises are often considered as organizational instruments to solve a wide range of social problems by depending on market-based activities (Mair, 2020). The range of social enterprise has expanded over time due to the inclusion of new organizations, especially associations and foundations that are more actively involved in providing welfare services, which are the most extensively distributed and have enormous growth potential (Borzaga et al., 2020). Social cooperatives, organizations, foundations, mutual aid societies, limited liability businesses, and conventional cooperatives (such community cooperatives) are all included in the spectrum of social enterprise. Nonetheless, it carries significant value in the multidimensional aspects of social enterprise activities with the open social innovation (OSI) (Yun et al., 2017). OSI includes social innovation in a sharing economy or a collaboration economy in particular. OSI is the use of inbound or outward open innovation tactics to societal issues, together with improvements in the organization's related business model. The majority of social enterprise are really open in nature, as social innovation under an open innovation paradigm comprises of open innovation with a social problem-solving objective (Harsanto et al., 2022). Hence, a social enterprise's innovation-oriented culture is essential to the development of new goods, services, and even business models to become a game-changing innovation and take advantage of development prospects in emerging markets (Yun et al., 2020). One of the key organizational drivers driving social innovation is the necessity of developing a business model that strikes a balance between societal demands, the social enterprise's core assets, and revenue-generating opportunities (João-Roland and Granados, 2020). In this case, one form of social enterprise with OSI paradigm that addresses social exclusion and relative food insecurity is food banks (Meijs, at al., 2020; Penco et al., 2022).

According to Sato et al. (2016), the establishment of food banks has a favourable influence as a method to dealing with the problem of hunger and reducing food loss and waste. Food banks are organizations that coordinate excess food from the community or the food business to be distributed to individuals in need (Minhajuel and Widiastuti, 2021). The food bank serves as a bridge between the challenges of high levels of hunger and high food loss and waste, as well as an endeavour to help the attainment of the SDGs' 2: no hunger, and SDGs' 12: responsible consumption and production. As a consequence, food banks have been established in a number of nations, including Indonesia and Malaysia. Food banks have a social responsibility objective and are a way to repurpose surplus food (Bazerghi et al., 2016).

Since its inception in the 1960s, the notion has gained traction. In the 1970s, a number of food banks were established around the United States with the purpose of minimizing food waste and eradicating hunger. These early food banks served as centralized warehouses, collecting and distributing food to local charities and civic organizations (Steyaert, 2013). In the years thereafter, the food bank model has extended internationally, and food banks have been established in a number of countries to address the critical problem of food insecurity (Loopstra et al., 2018). Food banks in different countries have different institutional and business models, ranging from pure non-profit organizations that focus on carrying out social missions without seeking profit (Glover et al., 2014) to social enterprises, which are business institutions that operate on market-based activities while carrying out the social mission. They collaborate with a wide range of partners, including government agencies, non-profit organizations, corporations, and volunteers, to collect and deliver food to individuals and families in need (Martin et al., 2020). Furthermore, food banks now provide services other than food. Many food banks also provide additional initiatives such as community gardens, nutrition education, and job training to empower people and communities (Vitiello et al., 2015).

Similar in other countries, the idea of developing Food Banks in Indonesia and Malaysia is an excellent social innovation as part of the answer to the problem of food insecurity, which still has to be addressed in a meaningful way. In the first recognized food bank was founded in Indonesia in 2015, while the food bank in Malaysia began a little earlier. After that, many Food banks in Indonesia and Malaysia were established and have various forms. This research objective is to analyse the phenomena of food banks as a social initiative, mapping social enterprise models in food bank operations in order to continue growing food banks in Indonesia and Malaysia, and analysing the embedded social innovation in the business model. This research aims to offer useful insights for policymakers, practitioners, and researchers by examining the effectiveness, operational models, contextual factors, and impacts of food. These data and trends will be used to make recommendations for optimizing and developing food banks in Indonesia and Malaysia.

2. Literature review

2.1. Business model canvas

Business Model Canvas was developed by Alexander Osterwalder and Yves Pigneur, and after that the model adopted widely in businesses to their specific needs. The business model canvas is comprised of nine interconnected building blocks, each representing a crucial aspect of a business model. These elements include key activities, key resources, key partners, channels, customer segments, cost structure, customer relationship, income stream, and value proposition (Osterwalder et al., 2011). This allows companies to gain a better understanding of their business model and identify areas for innovation and improvement (Joyce and Paquin, 2016). Even when food banks are non-profit organizations, using a business model canvas is still vital (Hindle and Vidgen, 2018).

2.2. Social enterprise

According to Alter (2007), every organization has a reason for achieving its objectives. There are organizations that are focused on making money (profit motive), organizations that are focused on achieving a specific social objective (mission motivation), and organizations that are focused on both (hybrid organizations) (Katz and Page, 2010). Social enterprise is defined as a form of business created for a

social purpose with the goal of mitigating or reducing a social problem or market failure and generating social value while exercising financial discipline, innovation, and private sector business determination. Social entrepreneurship is a way to work toward a more just and equitable society. Social enterprise addresses one of the most pressing issues confronting non-profit organizations today, namely how to produce long-term, sustainable impact (Alter, 2007). Hence, every social enterprise around the world is attributable, in part, to their link with the distinctive socioeconomic conditions of their location (Kerlin, 2009). There are four major social enterprise models defined by Defourny and Nyssens (2017): the Entrepreneurial Non-profit (ENP) Model, the Social Cooperative (SC) Model, The Social Business (SB) Model, and The Public-Sector Social Enterprise (PSE) Model.

2.3. Social enterprise model canvas

In order to defined the model of social enterprise that fit to different social motives, Social Enterprise Model Canvas (SEMC) are designed to facilitate the framing and solution of the most important challenges faced by these hybrid organizations (Sparviero, 2019). The characteristics of the business model canvas and the social enterprise themselves are the two primary considerations in selecting the business model canvas for social enterprise (Qastharin, 2016). Therefore, SEMC provides a link between the institutional domains of the voluntary and economic sectors, allowing ideas to be transferred from one to the other.

In order for a business model to be successful, certain critical factors must be in place. The Social Enterprise Model Canvas (SEMC) by Sparviero (Fig. 1) consists of 14 building blocks, with four based on those in the BMC, sharing similar information. These factors, known as Key Resources (KR), serve as the essential building blocks necessary for the business to thrive. Equally important are the Key Activities (KA), which outline the crucial tasks that a company must carry out to ensure the success of its business model. To effectively deliver its value proposition, an organization must also establish effective Channels (CH) for communication and reaching both its customers and beneficiaries (in the case of SEs). Cost Structure (C$), which encompasses all the financial investments needed to sustain the business model. Additionally, five of the BMC's building blocks have been adapted to align with the analysis and terminology of SEs. The Social Value Proposition (SVP), like the Value Proposition in the BMC, describes the offerings that provide value to certain customers and beneficiaries. However, it emphasizes that this value is social and can take numerous forms. Non-targeted Stakeholders (NtS) replaces the BMC's Key Partnerships building block and focuses on stakeholders who may be impacted by the organization's activities, as well as those who collaborate as partners but are not the organization's target customers or beneficiaries. Customers and Beneficiaries (C&B) are used in place of the Customer Segments block in the BMC to identify certain groups that a company intends to serve. Customers and Beneficiaries Engagement (C&B E) replaces the Customer Relationships area of the BMC and encourages a more in-depth assessment of the links built between enterprises and their intended beneficiaries. The Income block (I$), a critical component of the BMC, includes a wide range of financial and in-kind resources received by non-profit and for-profit organizations. Donations, fees, government financing, investments, and gifts are examples of these. Five additional building blocks are exclusively tailored for SE analysis, such as the Mission Values, Objectives, Impact Measures, Output Measures, and Governance. The Mission Values (MV), which define the organization's higher, long-term, ideal end-states or aims. The Objectives (Obj), which define the organization's short-term, ideal modes of conduct and more practical aims. The Impact Measures (IM), which specify the mission value assessment measures. The Output Measures (OM), which specify the objective assessment measures. The Governance (Gov), describes the main regulations and/or boards and committees established to run the organization.

3. Materials and methods

A case study methodology was used in this research project. The case study approach is a research methodology that emphasizes in-depth examination of numerous examples. A person, a group, an organization, a community, a phenomenon, or another sort of analysis could be used as it is necessary to comprehend a complex phenomenon in its actual setting, this type of approach is applied (Rashid et al., 2019). In this study, a comparison of various food bank operation situations in each country was made. The case study framework used Business Model Canvas from Alexander Osterwalder and Yves Pigneur as the base and then, the social enterprise models by Defourny and Nyssens, the Social Enterprise Model Canvas (SEMC) by Sparviero was employed to analyse the social enterprise and the social innovation.

The sampling strategy used was a non-probability sampling which refers to sampling technique in which the researcher selects samples based on the subjective judgment based on the existence of the main Food Banks in Indonesia and Malaysia. In this case, food banks were selected as a respondent, which was relevant to the research about food banks as a social innovation to achieve sustainable development goals. The number of interviewees were seven respondents who are the representatives of the food banks.

The data used in this research consists of primary data and secondary data. Primary data was obtained by directly interviewing key informants from the organization food banks. In this study, primary data were gathered through in-depth interviews with food bank organizations in each country. The data were then thematically analysed to find patterns and themes. When the primary data was not available, then the data collection was completed by secondary data. Secondary data was

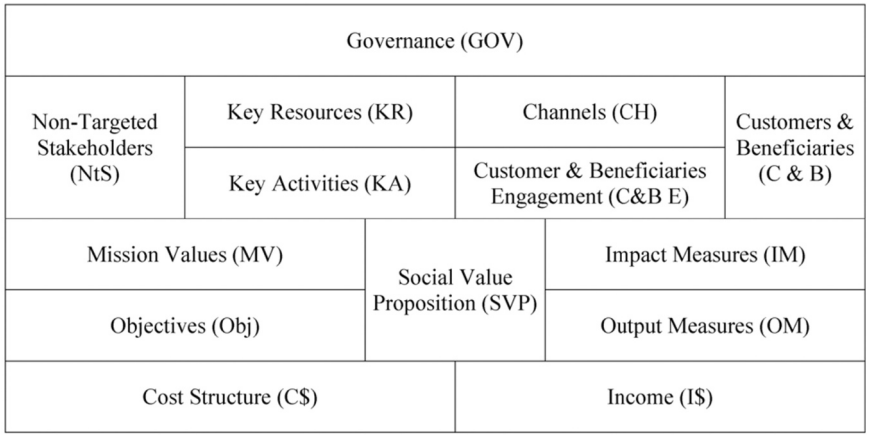


Fig. 1. The social enterprise model canvas. Source: Sparviero, (2019).

obtained from literature studies, previous research, publications of certain organizations such as FAO, BPS, annual reports of institutions and others as well as other related data obtained via the internet.

Data were gathered from various respondents, audio recordings from various interviews were transcribed, data were coded, and analysis was performed to provide greater insight into the data study. In this study, interviews served as the primary source of data, and secondary sources included books, websites, journal papers, and other literary works. The respondent's responses documented by audio recording and memo. The primary and secondary data analysis used ATLAS.ti software. A computer application called ATLAS.ti is made specifically for use in qualitative data analysis. It helped managed, coded, and analysed enormous amounts of textual, graphical, and multimedia data.

The interviews were recorded and the uploaded to ATLAS.ti along with the observational notes and all the documents. This software allows the researcher to code systematically and seek out themes, their interrelations and structure in the data collected. The data was coded using deductive coding: Adapted codes from the BMC framework were employed to code the data and some inductive coding of codes from the data also occurred. For each element of the BMC, we had synthesized 9 primary nodes. In some cases, from these we obtained a sub code as a more specific part of the research. The piece of text was tagged into the BMC element; then interviews and observation notes were coded into the element. For the purpose of recording observation during the analysis, field notes were taken with the software, ATLAS.ti, during the course of the analysis. A memo might do the trick to bring on board preliminary findings on the Malaysian foodbank as an example. Both coded the data and then mapped how different codes interconnect using a network building facility of the software ATLAS.ti. They were useful in the patterns between these networks because they could be compared. The analytical results and recommendations were presented on the basis of the analysis of the data. The analytical results were structured in the order of ensuring clarity in the social enterprise model canvas and social enterprise models. We analyzed the key elements to enhance the understanding of social enterprise model and the social innovation that can be draw from the social enterprise model canvas. Then we analyzed the comparison between social enterprise model that were found in the study. Then, the findings were compared based on the similarities and differences. We concluded the entire study with a thorough report.

4. Results

4.1. Social enterprise models canvas between food banks in Indonesia and Malaysia

We used the Social Enterprise Models Canvas to map the food banks in Indonesia and Malaysia. Table 2 depicts the overall practices of both countries in every element of the Social Enterprise Models Canvas. The Governance part demonstrates the slightly differing approaches of Indonesia and Malaysia. The main governing structure in food banks is the non-profit organization. However, several food banks in Indonesia are moving forward with social business governance. It entails integrating their operations into the rest of each element of their Social Enterprise Models. Interestingly, while individual food banks in Indonesia have distinct governance structures, they all have a similar social value proposition. Food banks in Malaysia employed a similar social value proposition.

Table 1
List of food bank organization samples.

Indonesia	Malaysia
FoodCycle	Food Aid Foundation (FAF)
Garda Pangan	The Lost Food Project (TLFP)
Food Bank Bandung	Yayasan Food Bank Malaysia (YFBM)
Food Bank of Indonesia	

Table 2
Comparison of social enterprise models canvas between food banks in Indonesia (INA) and Malaysia (MYS).

SEMC Element	Indonesia	Malaysia	Social Innovation
1. Governance	Non-profit organisation to Social Business	Social Foundation/ Non-profit organization	Social Business Models (INA)
2. Social Value Proposition	• Providing food rescue services and organic waste management for better economic, social and environment	• Rescuing food waste to reduce hunger for basic needs and health via educational activities	• Social Business Services (INA) • Waste Management Services (INA) • Rescuing food waste to reduce hunger for basic needs and health via educational activities (MYS)
3. Key Resources	• Donation for Non-profit organisation • Cost recovery activities • Income generating Activities for Social enterprise	• Donation	• Income generating Activities for Social enterprise (INA)
4. Key Activities	• Food rescue and distribution • Food waste management business services • Educational Activities • Organic treatment	• Food collection, sorting, cleaning and distribution. • Educational activities	• Educational activities (MYS) • Food waste management business services (INA) • Organic treatment (INA)
5. Non-Targeted Stakeholders	Third parties, general customers, businesses such as bakeries and pastries, the food and beverage industry, plantations, surplus food startups, and other non-profit institutions such as orphanages, integrated health posts, universities, government contracts	Local companies, restaurants, product market, manufactures, retailers, farms, NGOs	• Third parties (INA)
6. Mission Values	Integrating Environmental, Social and Economics for SDGs 2 and SDGs 12	Value for basic needs, value for education, value for health	• On social issues (INA) • On social approaches (MYS)
7. Objectives	Rescue waste and reduce hunger SDGs 2 and SDGs 12	Rescue waste and reduce hunger SDGs 2 and SDGs 12	Not applicable
8. Cost Structures	Management and labour, offices facilities, supply chain and logistics, training activities, programs and events, memberships	Warehouse, labour, facilities, logistics	Not applicable
9. Channels	NGO associations, Universities, social media, direct marketing	Advertising platform and donation platform	Not applicable

(*continued on next page*)

Table 2 (*continued*)

SEMC Element	Indonesia	Malaysia	Social Innovation
10. Customer and Beneficiaries	Households, farmers, internally displaced person, Impoverished	Charities organization, B40 Household, Disaster victim, Student Zoo	Not applicable
11. Customer and Beneficiaries Engagement	• Regular food distribution activities • Health monitoring • Training and workshop • Information and feedbacks	• Managing relationship: o By providing disclaimer on the food condition and expired date. o By maintaining the relationship after distributing the food • Update the information on activities and events • Providing access for feedbacks	Not applicable
12. Impact Measures	• Equality improvement in social impact on Indonesia by rising awareness. Moreover, they offered and better food quality support for the Impoverished • Economic impact on increasing jobs opportunities, support local market • Improve environmental by reducing organic waste and providing organic waste management	• a positive social effect and raised awareness about the problems of food waste and food poverty • mitigating the environmental effects of food overproduction and waste by redistributing surplus food and reducing food waste • overall economic impact on Malaysia since they reduced waste, produced jobs, offered social support	• Equality improvement in social impact (INA) • social effect and raised awareness (MYS)
13. Output Measures	• increase number of targeted people • reduce the amount of food waste • cost savings for businesses and the government for waste disposal • number of volunteers involved	• increase number of targeted people • reduce the amount of food waste • cost savings for businesses and the government for waste disposal	Not applicable
14. Income	• Donation for Non-profit organisation • Cost recovery activities • Income generating Activities for Social enterprise	• Donation	• Income generating Activities for Social enterprise (INA)

The governance and social value proposition elements employed by food banks imply variations in the remainder of the Social Enterprise Models Canvas elements. The elements of Key resources, Key activities, Non-targeted stakeholders, Cost structures, and Income were having more attributes in Indonesian food banks than in Malaysian food banks. While the elements of Channels, Customer and Beneficiaries, Customer and Beneficiaries Engagement, Impact Measures, and Output Measures all have a similar number of attributes with slightly varying contents.

While analysing Social Enterprise Models Canvas, some social innovation initiatives were able to be found in 9 elements such as Governance, Social Value Proposition, Key Resources, Key Activities, Non-Targeted Stakeholders, Mission Values, Impact Measures and Income. The social innovation initiatives in Indonesian food banks and Malaysian food banks were related to their choice of governance and social value propositions. Table 2 shows that Indonesian food banks had many social innovation initiatives. It shows in several elements such as Governance, Social Value Proposition, Key Resources, Key Activities, Non-Targeted Stakeholders, Mission Values, Impact Measures and Income. In each element, the social innovation was their initiatives in engaging their social activities in social enterprise. Whereas, the Malaysian food banks had fewer social innovation initiatives in Social Value Proposition, Key Activities, Mission Values, Impact Measures and Income.

Social business models are an example of social innovation in governance element in Indonesia. It combines social impact and financial sustainability by incorporating elements of conventional business operations with the aim of addressing societal issues. Therefore, an example of social innovation in Indonesia's foodbank social value proposition was the establishment of social business services and waste management services. By emphasizing the revenue-generating activities for social enterprise, it suggested social innovation in the key resource element and income element. As a result, their social innovation in the key activity was organic treatment and food waste management business services. Therefore, by emphasizing the integration of environmental, social, and economic factors for SDGs 2 and 12 as their social innovation in their mission value element, the Indonesian foodbank engaged third parties as part of its social innovation efforts with non-targeted stakeholders. It implies, as part of their impact measuring element, the food bank used to produce equity improvement in social impact as their social innovation.

In Malaysia, foodbanks had included social innovation into their social value offering to recover food waste, hence reducing hunger and promoting basic necessities and health through educational initiatives. As a result, the only social innovation they had in the element of key activities was education. As part of their mission value for social innovation, the educational programs incorporated environmental, social, and economic factors for SDGs 2 and 12. It suggests that the food bank employed social impact and awareness-raising as their social innovation as part of their impact measurement component.

4.2. Overview of food banks cases in Indonesia and Malaysia

There are many food banks in Indonesia; the study chose Garda Pangan, Food Bank Bandung, FoodCycle, and FOI to represent various coverage areas and operations. Food banks in Indonesia, as social organizations, share the same vision: to achieve the SDGs' second pillar, no hunger, and the SDGs' 12th pillar, responsible production and consumption. Both aims entail using food banks as intermediaries to reduce food loss and waste in Indonesia.

Garda Pangan is an Indonesian food bank that aims to serve as a central center for coordinating surplus and potentially wasted food delivery to impoverished communities. Garda Pangan envisions managing extra food that has the potential to be wasted for multiple social, environmental, and economic goals in accordance with the food recovery hierarchy. Food Bank Bandung is a non-profit organization situated in Bandung, Indonesia. The group is dedicated to social, humanitarian, and

environmental reasons, with the mission of strengthening food resilience among poor people and tackling excess food issues in the city. Food Bank Bandung's mission is to strengthen the food security of poor populations sustainably while also reducing food waste (food surplus) in the food supply chain in Bandung and its neighbouring areas. FoodCycle Indonesia connects individuals with excess food to communities in need, with the goal of achieving zero hunger and zero food waste. In Greater Jakarta, they have activities such as delivering nutritious breakfast items to poor youngsters. FoodCycle envisions a better Indonesia with zero hunger and zero food waste. Meanwhile, Food Bank of Indonesia, is a non-profit organization dedicated to combating hunger and food insecurity in Indonesia. Through synergistic activities, the group aims to make Indonesia completely self-sufficient in terms of hunger. FOI works with a variety of partners to rescue excess food and deliver it to people in need, so contributing to the fight against hunger. FOI envisions assisting in the development of food security in Indonesia through a more equitable distribution of food access, the protection of food sources, and the achievement of food security for all people.

The food banks in Malaysia shared similar vision like Food Banks in Indonesia in fighting hunger and reducing food waste and loss to support SDGs 2 and SDGs 12. Food Aid Foundation, a Malaysian food bank, is a non-profit governmental organization (NGO) created in 2013 that collects and distributes unused or rejected items to eradicate hunger and poverty. The organization's mission is to rescue extra food from supply chains such as manufacturers and distributors and re-distribute it to those in need. The Lost Food Project is a leading sustainability-led food bank in Malaysia. The Lost Food Project is a Malaysian non-profit organization that rescues excellent, nutritious food that would otherwise wind up in landfills and redistributes it and other critical products to those in need, regardless of religion, gender, age, disability, or ethnic group. Their main goal is to eliminate hunger in Malaysia. Meanwhile, Yayasan Food Bank Malaysia (YFBM) is a non-profit organization dedicated to reducing food waste and assisting communities, particularly those in need. The main goal of Yayasan Food Bank Malaysia to work with our partners to achieve a "zero hunger" and "zero waste" community in Malaysia through halal food supply, by using donor funds to purchase/acquire food supplies and rescuing surplus food from businesses in Malaysia that have food as their main or secondary output.

Table 3 indicates that two of the four types of social enterprise models were identified. In Indonesia, The Social Business (SB) and The Entrepreneurial Non-profit (ENP) were found. FoodCycle and Garda Pangan were active in a variety of projects that emphasize a 'triple bottom line' philosophy. Some activities were identified as creating "blended value" between profit and non-profit orientation in an effort to balance and better combine economic and social aims and strategies. By using this model, the both foodbanks emphasis their income by earning income from their business activities that link with their mission in social and environmental. Circular food waste management and food waste management services are two examples of their social business earnings. Food waste management services: organizes the logistics of food redistribution and links food waste producers (restaurants, hotels, etc.) with consumers. Businesses are charged for waste reduction services. Management of circular food waste: Utilizing Black Soldier Fly (BSF) bioconversion technology, the farm transforms organic waste into useful byproducts including compost and larvae. These products are offered for sale to farmers and gardeners. Whereas, the rest of foodbanks in Indonesia and Malaysia in this study were identified as Entrepreneurial Non-profit (ENP) model. These foodbanks took a ''mission-driven business'' approach, which involves establishing business activities to address social issues. These food banks depend on public grants and donations to operate their activities. Their primary sources of income are sponsorships and donations. Through partnerships with businesses, individual donors, and other organizations, foodbank is able to accept monetary and in-kind donations that allow food to be redistributed to areas who are less fortunate. Sponsors or financial donors frequently give logistical support for these collaborations. Community engagement and awareness programs provide an additional source of income. Although these programs don't immediately generate income, they do draw donations and sponsorships that help reduce food waste and teach communities about sustainability. In this study, the Social Cooperative (SC) Model and the Public-Sector Social Enterprise (PSE) Model were not fit with the food banks study cases.

Table 3
Mapping food banks cases in Indonesia and Malaysia based on Defourny and Nyssens of social enterprise models.

Food Banks name	Social Enterprise Models	Main Characteristics
FoodCycle	The Social Business (SB)	• business activities are developed in a "social or societal field''
Garda Pangan	The Social Business (SB)	• business activities are developed in a "social or societal field''
Food Bank Bandung	Entrepreneurial Non-profit (ENP)	• seeking to complement public grants and donations
Food Bank of Indonesia	Entrepreneurial Non-profit (ENP)	• seeking to complement public grants and donations
Food Aid Foundation	Entrepreneurial Non-profit (ENP)	• seeking to complement public grants and donations
The Lost Food Project	Entrepreneurial Non-profit (ENP)	• seeking to complement public grants and donations
Yayasan Food Bank Malaysia	Entrepreneurial Non-profit (ENP)	• seeking to complement public grants and donations

5. Discussion

Food banks in Indonesia and Malaysia were typically in The Entrepreneurial Non-profit (ENP) Model. Since, the organizations were founded under non-profit organisation. Therefore, their earning-income discourses were focused on commercial non-profit (Defourny and Nyssens, 2017). Their social enterprise canvas model demonstrates that their earned-income operations are primarily aimed at supplementing public funds and donations with new sources of revenue. However, some food banks in Indonesia were using The Social Business (SB) Model. These food banks promote broader business ideas and strategies as an effective means of addressing social issues. These food banks believed that by utilizing the social business model, they could build social innovation in business activities that generate long-term revenue for a social purpose or mission (Defourny and Nyssens, 2017; João-Roland and Granados, 2020). As a result, in creating business activities, these food banks used the ''social or societal field'', such as business services and environmental protection, or services that their non-targeted stakeholders may be interested in. In this scenario, they are incorporating social innovation into the fundamental nature of their corporate operations and manufacturing (Phills et al.,2008; Mair, 2020; Yun et al., 2020; Harsanto et al., 2022). The observed range of social enterprise in Malaysia and Indonesia shown noteworthy benefits in the multifaceted facets of social enterprise operations utilizing open social innovation (Yun et al., 2017). Both countries' food bank business models demonstrated how social enterprises innovated to address social exclusion and relative food insecurity while striking a balance between societal demands, the social enterprise's core assets, and opportunities to generate revenue (João-Roland and Granados, 2020; Meijs et al., 2020; Penco et al., 2022).Governance played a key role in the social enterprise canvas model. As we acknowledge that in social enterprise model, there were two types of governance exist in food banks in Indonesia and Malaysia: non-profit organisation and social business. A range of institutional elements, including historical customs, values, current legal frameworks, and discourses in the area, have an impact on their governance (Defourny and Nyssens, 2017). Therefore, the governance also influencing their social value proposition. It shows in the different social value proposition between Indonesia and Malaysia. It may be argued that in Indonesia, the food banks had to shift their governance from non-profit into social business due to the limitation of public

involvement. Furthermore, social entrepreneurship became well-known in Indonesia due to the growing popularity of social entrepreneurship, a particular type of entrepreneurship that is based on creative business ideas (Vial, 2016). In Malaysia, public involvement or donation played a major role in the development of food banks. These findings were different from other countries that may have three forms of social enterprise (Defourny, Nyssens, and Brolis, 2021)

In order to run the operation of food banks, the element of key resources are the vital assets and components that businesses depend on to run efficiently and to accomplish food banks' missions. For the successful business model, it is crucial to have a clear understanding of their resources (Sort and Nielsen, 2018). It could optimize other resources such as physical resources, human resources, financial resources and technology which are crucial to the operation of food banks (González-Torre and Coque, 2016; Gharehyakheh and Sadeghiamirshahidi, 2018; Akkerman et al., 2023). Food banks in Indonesia rely on the key resources based on their activity in social businesses, such as donation, cost recovery activities, income generating activities for social enterprise. These resources were important for food banks to have their social value proposition could be achieved. Whereas, food banks in Malaysia had donation as their only key resource. However, this key resources already enough in running their food bank operation. Especially, key resources have a relation to key activities In the of Social Enterprise Models Canvas. Key activities are the essential jobs and processes a food bank performs to accomplish its goals and benefit its stakeholders. As they directly contribute to giving clients value and generating revenue, these activities are crucial to the success of a food bank's business strategy (Sparviero, 2019). To guarantee effective and fair distribution, food banks work with partner organisations like food pantries, soup kitchens, and community centres. It is to organise delivery schedules and arrange transportation routes (Bazerghi et al., 2016). In this study, food banks in Indonesia performed food rescue and distribution, food waste management business services, educational activities, and organic treatment to achieved their social value proposition by optimizing their key resources. While, food banks in Malaysia were focused on food collection, sorting, cleaning and distribution and educational activities to support their social value proposition.

Food banks operations will rely on their business partners as Non-Targeted Stakeholders to collaborate. Especially in maintaining which channel is best for their activities. Efficient channels managements play crucial role in developing customer relationships and raising brand recognition to their customer groups (Sort and Nielsen, 2018). Food banks have to set a priority on trust, empathy, clear communication, and extra assistance for its clients (Parker et al., 2020). In Indonesia, NGO associations, universities, social media were the main platform and channel to achieve their activities. Since some of food banks focus on social business, therefore direct marketing efforts were used as their main channel. In Malaysia, advertising is essential for food bank organizations since it brings in cash and recipients. Various platforms can be used to promote the organization. However, social media sites like Facebook and Instagram would be the most useful platform. Regarding donations, there is a platform that may be utilized to accept bank transfers. The food bank can provide the donors with a bank account number or QR code to make it simpler for them to donate. Platforms like jomdonate.com can be used by food bank organizations to increase donations. On this platform, donors can make contributions to numerous charities from a single web page. Donors will donate more if it is easier for them to do so. Therefore, Customer and Beneficiaries Engagement in Indonesia focused on regular food distribution activities, health monitoring, training and workshop and Information and feedbacks to support their non-profit organization or social business. While in Malaysia, food banks as the non-profit organization had more activities in managing relationship. These activities included providing disclaimers about the food condition and expiration date, maintaining the relationship after distribution, updating information on activities and events, and offering access for feedbacks. These elements were important to focus on Impact Measures and Output Measures for food banks. These measures were almost similar for food banks in both countries. In general, the impacts were on social, environmental and economic issues. Moreover, the output was measured by the involvement of public and their direct impact on several social, environmental and economics measurements.

Furthermore, all these factors have consequences into their cost structure in achieving SDGs (Rivera et al., 2023). Therefore, food banks must diversify their sources of income (Hindle and Vidgen, 2018). A typical source of income for the government is through grants or contracts, business partnerships and corporate sponsorships, individual contributions from community members and supporters, and grant funding opportunities. To garner support and involve stakeholders with a positive impact, food banks must successfully communicate their value. Food banks may encourage collaboration, secure funds, and form partnerships to help them achieve the Sustainable Development Goals by demonstrating their impact on decreasing hunger, reducing food waste, and empowering communities (Hindle and Vidgen, 2018). Therefore, their income as revenue stream were different between food banks in Indonesia and Malaysia. Since in Indonesia, food banks were developing social business (even for non-profit model) with income as their key resources in their social mission. While in Malaysia, they were not profitable as an NGO. Food bank organizations do not count revenues that are in excess of costs as revenue or profits. Any extra funds will be used for upcoming projects or to pay for ongoing expenses.

Even tough small changes were shown in the Social Enterprise Model Canvas Element, it shows the social innovation initiatives. In addition to reducing food loss and waste, a variety of fresh viewpoints are encouraging increased cooperation and respect for the right to food. The food banks considered these issues in light of the various social, environmental, and economic factors. Because of these food banks' social innovation initiatives, system-oriented viewpoints are emerging within the food banking industry, leading to a recent surge in what we refer to as "social innovation" (De la Salle and Unwin, 2016). The food banks' efforts in both countries to modify their economic model in a sustainable way while taking into account the factors that determine their social mission are known as social innovation initiatives. New methods are a reflection of the increased focus on hunger and food waste in all socioeconomic groups as major players in finding solutions to the problem of hunger. While using markets as the foundation for expanding access to healthful meals, concentrating on cutting waste generated by corporate services can be considered as a more just approach (Elmes et al., 2016; Meijs, et al., 2020; Mair, 2020). In their social enterprise canvas model, these social initiatives were depicted.

There are similarities and differences between the social business and entrepreneurial non-profit models identified in this study. The operational models, which are predicated on mission direction, target market characteristics, and the extent to which corporate operations are integrated into social initiatives, are where the two models share similarities. It displays community development/interest groups and market-oriented nonprofits as public-benefit organizations in both categories.

The operations and areas of interest are where the differences were discovered. A comparable range of economic activities and a comparable range of social missions are depicted in the social business model. The majority of social-business groups sell their products and services at market rates, as we also discover (Meijs, et al., 2020; Mair, 2020). According to their mission and activities, social businesses' economic activity is more often "mission-related," meaning that they provide goods or services to a larger population rather than the group that the social mission is aimed at. This further supports the notion that the social-business model is firmly anchored in small and medium-sized businesses' readiness to create blended value (Defourny, Nyssens, and Brolis, 2021). As a result, social businesses are required to use market resources to pay for all of their expenses. They are also owned by investors who do not get dividends, with all profits going back into the

company to further its social objective. The majority of the time, the business models employed by social businesses in this category are derived from grassroots innovation, although they were created using the open innovation principle (Yun et al., 2017).

Entrepreneurial non-profit model shows typical of nonprofit organizations that providing mainly education, health, and social services. Therefore, in cases where such practice is implemented, the organization may also receive substantial public subsidies (Defourny and Nyssens, 2017). These enterprises' productive activities can be considered as being less often "mission-centric" and more often "mission-related". Any market-oriented and mission-centric activity, like production activities in various industries for their goods or services and train unskilled workers, were non-profit (Defourny, Nyssens, and Brolis, 2021). Therefore, entrepreneurial non-profit model has limited open innovation in their business model.

In general, both business models were working model in both countries' social enterprise. However, it is still difficult to determine which business model works better for food banks initiative. First, their Institutional logics between mutual interest, general interest and capital interest are different (Defourny, Nyssens, and Brolis, 2021). Second more comprehensive study is needed, since in exploring the different contexts induced a high degree of differences across countries, as well as in the selection of foodbanks to be covered by the study.

6. Limitations

The study was able to depict the food banks activities and models within Indonesia and Malaysia. However, there are some limitations in this study. The study's limitations are the relatively small sample size used for the case study. Second, despite the fact that the sample is cross-national, non-profit activities from other ASEAN countries than Indonesia and Malaysia with are not represented in our case study. Third, the study's limitations arise from the use of the case approach, which may result in some distortion of theoretical findings.

7. Conclusion

We have found that many food banks in Indonesia and Malaysia operate under the Entrepreneurial Non-Profit Model, which is defined as embracing both non-profit organizations and mission-driven businesses. We also discovered The Social Business Model, which emerged from the entrepreneurial Non-Profit Model. It was seen from the identical activities in the Social Enterprise Model Canvas. At the same time, these findings demonstrate a social innovation program aiming at a resource mix and a governance structure that ensures the priority of social, environmental, and economic goals. This emphasizes the significance of recognizing the differences and roles of various social enterprises and trajectories. Furthermore, the non-profit as a social enterprise has a long history of engaging in practices that involved in a social mission. Therefore, a significant challenge for the social enterprise may be essential: social innovation initiatives food banks in Indonesia and Malaysia should be viewed as leading the way for social enterprises seeking strategies to strengthen their social mission to become stronger, rather than as an adjunct to other goals.

Ethical statement

All procedures performed in studies were in accordance with the ethical standards of the institutional and/or national research committee.

CRediT authorship contribution statement

Norlena Binti Hasnan: Writing – original draft, Validation, Resources, Investigation, Formal analysis, Data curation. **Dikky Indrawan:** Writing – review & editing, Writing – original draft, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Alminnourliza Binti Noordin:** Writing – original draft, Validation, Resources, Investigation, Formal analysis, Data curation. **Windi Siti Maryam:** Writing – original draft, Validation, Resources, Investigation, Formal analysis, Data curation. **Popong Nurhayati:** Writing – original draft, Validation, Resources, Investigation, Formal analysis, Data curation. **Adhitya Rahmana:** Writing – original draft, Resources, Investigation, Formal analysis, Data curation. **Agustina Widi Palupiningrum:** Writing – original draft, Validation, Methodology, Formal analysis, Data curation. **Nor Hasni Osman:** Writing – original draft, Validation, Resources, Investigation, Formal analysis, Data curation. **Mohd Rizal Razalli:** Writing – review & editing, Writing – original draft, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

Dikky Indrawan is employed by the Food Bank Bandung. The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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References

Akkerman, R., Buisman, M., Cruijssen, F., de Leeuw, S., Haijema, R., 2023. Dealing with donations: supply chain management challenges for food banks. Int. J. Prod. Econ. 262, 108926.
Ali, A., Xia, C., Mahmood, I., Faisal, M., 2021. Economic and environmental consequences' of postharvest loss across food supply Chain in the developing countries. J. Clean. Prod. 323, 129146.
Alter, K., 2007. Social enterprise typology. Virtue Ventur. LLC 12 (1), 1–124.
Bazerghi, C., McKay, F.H., Dunn, M., 2016. The role of food banks in addressing food insecurity: a systematic review. J. Community Health 41, 732–740.
Borzaga, C., Galera, G., Franchini, B., Chiomento, S., Nogales, R., Carini, C., 2020. Soc. Enterp. Ecosyst. Eur.
De la Salle, J. and Unwin, J., 2016. Social Innovation in Food Banks an Environmental Scan of Social Innovation in Canadian and US Food Banks [PDF]. URL: http://www.feedopportunity. com/wp-content/uploads/2016/11/Social-Innovation-Scan-of-Food-Banks. pdf.
Defourny, J., Nyssens, M., Brolis, O., 2021. Testing social enterprise models across the world: evidence from the "International Comparative Social Enterprise Models (ICSEM) project. Nonprofit Volunt. Sect. Q. 50 (2), 420–440.
Defourny, J., Nyssens, M., 2017. Fundamentals for an international typology of social enterprise models. VOLUNTAS: Int. J. Volunt. Nonprofit Organ. 28, 2469–2497.
Elmes, M.B., Mendoza-Abarca, K., Hersh, R., 2016. Food banking, ethical sensemaking, and social innovation in an era of growing hunger in the United States. J. Manag. Inq. 25 (2), 122–138.
Gharehyakheh, A. and Sadeghiamirshahidi, N., 2018. A Sustainable Approach in Food Bank Logistics. In Proceedings of the International Annual Conference of the American Society for Engineering Management. (pp. 1-8). American Society for Engineering Management (ASEM).
Glover, W.J., Poopunsri, T. and Hurley, R., 2014. Applying lean to non-profit organizations: A food bank case study. In IIE Annual Conference. Proceedings (p. 274). Institute of Industrial and Systems Engineers (IISE).
González-Torre, P.L., Coque, J., 2016. How is a food bank managed? Different profiles in Spain. Agric. Hum. Values 33, 89–100.
Harsanto, B., Mulyana, A., Faisal, Y.A., Shandy, V.M., 2022. Open innovation for sustainability in the social enterprises: an empirical evidence. J. Open Innov. Technol., Mark. Complex. 8 (3), 160.
Hindle, G.A., Vidgen, R., 2018. Developing a business analytics methodology: a case study in the foodbank sector. Eur. J. Oper. Res. 268 (3), 836–851.
Janik, A., Ryszko, A., Szafraniec, M., 2021. Exploring the social innovation research field based on a comprehensive bibliometric analysis. J. Open Innov.: Technol. Mark. Complex. 7 (4), 226.
João-Roland, I.D.S., Granados, M.L., 2020. Social innovation drivers in social enterprises: systematic review. J. Small Bus. Enterp. Dev. 27 (5), 775–795.
Joyce, A., Paquin, R.L., 2016. The triple layered business model canvas: a tool to design more sustainable business models. J. Clean. Prod. 135, 1474–1486.
Kamil, M.J.B.M., Hua, C.E., Sani, M.N.A., 2022. Adaptation of smart-object dimensions in the product design process to reduce household food waste. J. Graph. Eng. Des. 13 (3), 5–17.

Katz, R.A. and Page, A., 2010. The Role of Social Enterprise. Vt. L. Rev., 35, p.59.
Kerlin, J.A. ed., 2009. Social Enterprise: A Global Comparison. UPNE.
Koirala, S., Shrestha, A., Thapa, S.P. and Anal, A.K., 2022. 16 Food Loss and Waste. Valorization of Agro-Industrial Byproducts: Sustainable Approaches for Industrial Transformation, p.329.
Loopstra, R., Fledderjohann, J., Reeves, A., Stuckler, D., 2018. Impact of welfare benefit sanctioning on food insecurity: a dynamic cross-area study of food bank usage in the UK. J. Soc. Policy 47 (3), 437–457.
Luna, P., Suryana, E.A., 2022. Implementation of food loss and waste (FLW) system in Indonesia as an initiative of G20 Presidency. J. Anal. Kebijak. 6 (1), 46–61.
Mair, J., 2020. Social entrepreneurship: research as disciplined exploration. Nonprofit Sect. A Res. Handb. 333–357.
Malaysia Global Hunger Index. (2023). Global Hunger Index (GHI). Retrieved July 9, 2023, from https://www.globalhungerindex.org/malaysia.html.
Martin, J.M., Tremblay, B., Karlowicz, K., 2020. Community health education re-envisioned: the value of partnership with the local food bank. J. Prof. Nurs. 36 (5), 417–423.
Meijs, L., Handy, F., Simons, F.J., Roza, L., 2020. A social innovation: addressing relative food insecurity and social exclusion. VOLUNTAS: Int. J. Volunt. Nonprofit Organ. 31, 894–906.
Minhajuel, H., Widiastuti, T., 2021. Model Pengelolaan Infak Sedekah Pada Food Bank. J. Ekon. Syari'ah Teor. Dan. Terap. 8 (3), 354–362. https://doi.org/10.20473/vol8iss20213pp354-362.
Munir, A., 2023. Climate Change and Food Insecurities: The Importance of Food Loss and Waste Reduction in Indonesia. In IOP Conference Series: Earth and Environmental Science (Vol. 1134, No. 1, p. 012040). IOP Publishing.
Osterwalder, A., Pigneur, Y., Oliveira, M.A.Y., Ferreira, J.J.P., 2011. Business model generation: a handbook for visionaries, game changers and challengers. Afr. J. Bus. Manag. 5 (7), 22–30.
Parker, M.A., Mook, L., Kao, C.Y., Murdock, A., 2020. Accountability and relationship-definition among food banks partnerships. VOLUNTAS: Int. J. Volunt. Nonprofit Organ. 31, 923–937.
Penco, L., Ciacci, A., Benevolo, C., Torre, T., 2022. Open social innovation for surplus food recovery and aid during COVID-19 crisis: the case of Fondazione Banco Alimentare Onlus. Br. Food J. 124 (6), 1875–1894.
Phills, J.A., Deiglmeier, K., Miller, D.T., 2008. Rediscovering social innovation. Stanf. Soc. Innov. Rev. 6 (4), 34–43.
Phooi, C.L., Azman, E.A., Ismail, R., Arif Shah, J., Koay, E.S.R., 2022. Food waste behaviour and awareness of Malaysian. Scientifica 2022.
Qastharin, A.R., 2016. Business model canvas for social enterprise. J. Bus. Econ. 7 (4), 627–637.
Rashid, Y., Rashid, A., Warraich, M.A., Sabir, S.S., Waseem, A., 2019. Case study method: a step-by-step guide for business researchers. Int. J. Qual. Methods 18 p.1609406919862424.
Rivera, A.F., Smith, N.R., Ruiz, A., 2023. A systematic literature review of food banks' supply chain operations with a focus on optimization models. J. Humanit. Logist. Supply Chain Manag. 13 (1), 10–25.
Ruggieri, R., Sardaryan, H., Ruggeri, M., Vinci, G., 2020. Food losses and food waste: the Industry 4.0 opportunity for the sustainability challenge. Food Losses Food Waste.: Ind. 4. 0 Oppor. Sustain. Chall. 159–177.
Sato, M., Nakano, M., Gatto, K., Wunderlich, S., 2016. Nutritional and environmental considerations of food stockpiles in Japan and USA: reducing food waste by efficient reuse through the food banks. Environ. Econ. Impact Sustain. Dev. 154.
Simamora, L., Zebua, D.D.N. and Handayani, W., 2022, December. The Drivers of Food Loss at the Farm Level: A Study of Farmers in Salatiga, Central Java, Indonesia. In IOP Conference Series: Earth and Environmental Science (Vol. 1111, No. 1, p. 012033). IOP Publishing.
Sort, J.C., Nielsen, C., 2018. Using the business model canvas to improve investment processes. J. Res. Mark. Entrep. 20 (1), 10–33.
Sparviero, S., 2019. The case for a socially oriented business model canvas: the social enterprise model canvas. J. Soc. Entrep. 10 (2), 232–251.
Steyaert, J. (2013). 1967 John van Hengel & food banks. History of social work, details. ⟨https://historyofsocialwork.org/eng/details.php?cps= 20&canon_id= 172⟩.
Venessa, K., Aripradono, H.W., 2023. Usage of gamification and mobile application to reduce food loss and waste: a case study of Indonesia. J. Inf. Syst. Inf. 5 (1), 102–122.
Vial, V., 2016. A business model canvas for social enterprises. Sains Hum. 8 (1-2).
Vitiello, D., Grisso, J.A., Whiteside, K.L., Fischman, R., 2015. From commodity surplus to food justice: food banks and local agriculture in the United States. Agric. Hum. Values 32, 419–430.
Wafi, M.A.A. and Tumiran, M.A., 2022, August. Food Waste Management in Malaysia: A Brief Introduction. In Selected Proceedings from the 1st International Conference on Contemporary Islamic Studies (ICIS 2021) (pp. 275-282). Singapore: Springer Nature Singapore.
You, S., Sonne, C., Park, Y.K., Kumar, S., Lin, K.Y.A., Ok, Y.S., Wang, F., 2022. Food loss and waste: a carbon footprint too big to be ignored. Sustain. Environ. 8 (1), 2115685.
Yun, J.J., Park, K., Im, C., Shin, C., Zhao, X., 2017. Dynamics of social enterprises—shift from social innovation to open innovation. Sci. Technol. Soc. 22 (3), 425–439.
Yun, J.J., Zhao, X., Jung, K., Yigitcanlar, T., 2020. The culture for open innovation dynamics. Sustainability 12 (12), 5076.