

Strategic Needs Assessment and Framework Development for A Community Food Bank in Naga City

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ABSTRACT

This study aimed to assess the sustainability and develop a strategic framework for establishing a community-based food bank for indigent households in selected barangays of Naga City, Philippines. Anchored on the Food and Agriculture Organization's four dimensions of food security—availability, accessibility, utilization, and stability—the research employed a mixed-methods design involving 100 household respondents and 50 key stakeholders from local government units, non-government organizations, private sector partners, and community groups. Quantitative data were gathered using structured survey instruments, including a household food security assessment and an integrated stakeholder sustainability questionnaire, and analyzed through descriptive statistics, weighted means, and ranking. Findings revealed that while households continue to experience moderate to severe food insecurity—characterized by inconsistent access to nutritious food and vulnerability to economic and environmental shocks—there exists strong institutional readiness, stakeholder willingness, and availability of recoverable food resources. However, challenges related to logistics, storage, coordination, and long-term financing were identified as critical constraints. Through methodological triangulation, the study developed the N.A.G.A. Food Bank Strategic Framework, integrating needs assessment, resource mobilization, stakeholder collaboration, and sustainability mechanisms within local governance systems. The proposed model emphasizes multi-sectoral partnerships, policy support, and community engagement to ensure operational viability and long-term resilience. The study concludes that a structured, systems-oriented food bank model can serve as a sustainable intervention to address urban food insecurity while reducing food waste and strengthening social protection mechanisms in Naga City.

Keywords: food security, community food bank, sustainability framework, stakeholder collaboration, resource mobilization

Food insecurity remains a pressing global and local challenge, reflecting not only inadequate food supply but also unequal access to safe, nutritious, and affordable food, with more than 2.4 billion people experiencing moderate to severe food insecurity worldwide (Food and Agriculture Organization, 2023). In the Philippines, this condition persists amid socioeconomic disparities, disaster vulnerability, and post-pandemic disruptions, particularly among urban poor communities, where reliance on short-term relief efforts and community pantries—while demonstrating bayanihan—remains largely unsustainable (Angeles-Agdeppa et al., 2022; del Castillo, 2021). Globally, food banks have emerged as viable mechanisms for redistributing surplus food, reducing waste, and strengthening food security systems; however, their long-term effectiveness depends on institutional support, stakeholder collaboration, and sustainability integration (Oldroyd et al., 2022; Ong et al., 2020; Pintor et al., 2023; Poblacion et al., 2022). In response, this study assesses the sustainability and feasibility of establishing a community-based food bank in Naga City and develops the N.A.G.A. Food Bank Strategic Framework, anchored on the FAO's four dimensions of food security—availability, accessibility, utilization, and stability—to provide a systems-oriented, governance-driven, and sustainable intervention that links immediate food assistance with long-term resilience and equitable urban development.

Research Objectives

This study aims to address the central problem of persistent food insecurity among indigent households in Naga City despite the presence of fragmented relief initiatives and available food resources. Specifically, it seeks to

determine whether a structured, community-based food bank model can serve as a sustainable and systems-oriented solution to improve food security outcomes. Guided by this objective, the study hypothesizes that (1) indigent households experience varying levels of food insecurity across the dimensions of availability, accessibility, utilization, and stability; (2) the establishment of a food bank in Naga City is sustainable in terms of economic, social, and institutional/governance dimensions; (3) there are identifiable opportunities and constraints related to stakeholder involvement, resource availability, operational feasibility, and sustainability mechanisms; and (4) a strategic framework integrating these elements can enhance coordination, efficiency, and long-term impact. Accordingly, the study specifically aims to: (1) determine the current food security situation of indigent households in selected barangays of Naga City in terms of availability, accessibility, utilization, and stability; (2) analyze the sustainability of establishing a community-based food bank in terms of economic, social, and institutional/governance aspects; (3) assess the opportunities and challenges related to stakeholder involvement, resource availability, operational feasibility, and sustainability mechanisms; and (4) design a strategic framework that integrates food security needs, resource mobilization, stakeholder collaboration, and sustainability mechanisms for the establishment of a sustainable community-based food bank in Naga City.

Scope and Delimitation

This study focuses on assessing the sustainability and developing a strategic framework for the establishment of a community-based food bank in Naga City, Philippines. The research specifically covers selected barangays with identified indigent households, serving as the primary beneficiaries of the proposed model. The population includes 100 purposively selected household respondents to assess food security conditions across the four dimensions of availability, accessibility, utilization, and stability, and 50 key stakeholders representing local government units, barangay officials, non-government organizations, private sector partners, faith-based groups, and community organizations to evaluate sustainability, opportunities, and challenges. Data collection was conducted within the study period of 2025–2026 using structured survey instruments and supported by descriptive statistical analysis.

The study is delimited to the context of Naga City and does not extend to rural municipalities or other regions, thereby limiting generalizability. It focuses on a framework development rather than actual implementation or impact evaluation of a food bank. Financial projections, while considered at a conceptual level, are not subjected to full-scale economic feasibility testing. Additionally, the study relies on self-reported data from respondents, which may be subject to response bias. Other aspects such as detailed nutritional analysis of redistributed food, legal liability structures, and technological systems for food bank operations are acknowledged but not explored in depth. These delimitations were intentionally set to ensure a focused, context-specific, and framework-oriented analysis aligned with the objectives of the study.

Theoretical/Conceptual Framework

This study is anchored on an integrated theoretical and conceptual framework that combines the Food and Agriculture Organization's (FAO) Four Dimensions of Food Security, the Three Pillars of Sustainability, and the Capability Approach, operationalized through a Human-Centered Design Thinking process. The FAO framework provides the primary lens for assessing food security conditions in terms of availability, accessibility, utilization, and stability, ensuring a comprehensive understanding of household-level food insecurity (Food and Agriculture Organization, 2023). Complementing this, the Three Pillars of Sustainability—economic, social, and environmental/institutional—guide the evaluation of the long-term viability of a community-based food bank, particularly in terms of resource mobilization, stakeholder engagement, and governance mechanisms.

The study further draws from the Capability Approach, which emphasizes expanding individuals' abilities to access food and achieve well-being, shifting the focus from mere food provision to empowerment and resilience. This perspective is particularly relevant in addressing structural inequalities affecting indigent households. To operationalize these theoretical foundations, the study adopts a Human-Centered Design Thinking approach, ensuring that the proposed food bank model is context-sensitive, participatory, and responsive to the actual needs of beneficiaries and stakeholders.

These frameworks are synthesized into a conceptual model structured through an Input–Process–Output (IPO) system. The inputs include household food security conditions and stakeholder resources; the processes involve needs assessment, stakeholder collaboration, and sustainability integration; and the output is the N.A.G.A. Food Bank Strategic Framework. This integrated framework provides a systems-oriented and governance-driven foundation for developing a sustainable, community-based food bank that addresses both immediate food needs and long-term food security in Naga City.

METHODOLOGY

This study employed an exploratory mixed-methods research design to assess the sustainability and develop a strategic framework for a community-based food bank in Naga City. The design integrates quantitative data from indigent households and key stakeholders to provide a comprehensive, systems-oriented understanding of food security conditions and institutional readiness. Moreover, qualitative data were obtained through the responses of the respondents in a voluntary interview, where key themes emerged. The study was conducted in selected barangays of Naga City during the period 2025–2026.

The respondents consisted of 100 purposively selected indigent households and 50 key stakeholders, including representatives from local government units, barangay councils, non-government organizations, private sector partners, faith-based groups, and community organizations. Household respondents were assessed using a Bilingual Household Food Security Survey Questionnaire, which measured food security across four dimensions: availability, accessibility, utilization, and stability. Each dimension was operationalized through specific indicators such as frequency of food consumption, access to markets, dietary diversity, and vulnerability to food disruptions, and was scored using a coding system to generate an Overall Food Security Index (OFSI).

Stakeholder respondents were surveyed using an Integrated Stakeholder Survey Questionnaire, which evaluated sustainability in terms of economic, social, and institutional/governance dimensions, as well as opportunities and challenges related to stakeholder involvement, resource availability, operational feasibility, and sustainability mechanisms. Data were collected through structured, in-person survey administration to ensure completeness and reliability.

Quantitative data were analyzed using descriptive statistics, including frequency, percentage, weighted mean, and ranking, guided by the FAO's four dimensions of food security and the Three Pillars of Sustainability. Moreso, an interview was conducted to the respondents after answering the questionnaire. The interview sessions were recorded and thematic analysis was performed. Findings from both household and stakeholder assessments were integrated through methodological triangulation to identify convergence and divergence of results, forming the basis for framework development.

Conceptually, the independent variables include food security dimensions and stakeholder-related factors, while the dependent variable is the proposed sustainable community-based food bank framework. Operationally, variables were defined based on measurable survey indicators, ensuring alignment between theoretical constructs and empirical data. This methodological approach enabled the development of a context-sensitive, evidence-based, and governance-driven strategic framework for addressing food insecurity in Naga City.

Research Design

This study utilized an exploratory mixed-methods research design to comprehensively assess food security conditions and evaluate the sustainability of a proposed community-based food bank in Naga City. The design integrates quantitative data from indigent households and key stakeholders to capture both demand-side realities and supply-side capacities, allowing for a systems-oriented analysis of food insecurity and institutional readiness. Household-level data were used to measure food security across the dimensions of availability, accessibility, utilization, and stability, while stakeholder data assessed economic, social, and institutional/governance sustainability, as well as opportunities and challenges in implementation. Moreover, qualitative design was also employed through the aid of interviewing the respondents, and subjecting their responses to thematic analysis. This approach enabled the triangulation of findings to identify patterns, gaps, and convergence between community needs and organizational capabilities, ultimately informing the

development of an evidence-based and context-sensitive strategic framework for a sustainable community-based food bank. Moreover,

Respondents/Participants of the Study

The study involved two key groups of respondents selected through purposive sampling to ensure relevance to the research objectives: (1) 100 indigent household respondents from selected barangays in Naga City, and (2) 50 key stakeholders representing local government units (LGUs), barangay officials, non-government organizations (NGOs), private sector partners, faith-based groups, and community-based organizations. The household respondents primarily consisted of low-income families identified by barangay records and local social welfare offices, characterized by varying demographic profiles in terms of age, sex, household size, educational attainment, and socioeconomic status, with most relying on informal or unstable sources of income. These households were selected due to their vulnerability to food insecurity and their relevance as primary beneficiaries of the proposed food bank model.

The stakeholder participants, on the other hand, were selected based on their direct involvement or potential role in food security initiatives, resource provision, governance, or community service. They included both male and female representatives with diverse professional backgrounds, including public administration, social work, business, and community leadership. Language preference for both groups included English and Filipino/Tagalog to ensure clarity and inclusivity during data collection.

The use of purposive sampling allowed the researcher to target respondents with direct knowledge, experience, or exposure to food insecurity and food assistance systems, thereby enhancing the validity and contextual relevance of the data. This sampling approach is appropriate for exploratory and framework development studies, where the goal is not generalization but the generation of in-depth, context-sensitive insights to inform a strategic and sustainable intervention.

Data Gathering Tools

This study utilized two structured survey instruments designed to ensure validity, reliability, and contextual relevance: the Bilingual Household Food Security Survey Questionnaire and the Integrated Stakeholder Survey Questionnaire. The household instrument was adapted from established food security measurement frameworks and operationalized the four dimensions of food security—availability, accessibility, utilization, and stability—through clearly defined indicators such as food consumption patterns, access to food sources, dietary diversity, and vulnerability to food disruptions. Responses were coded using a standardized scoring system to generate an Overall Food Security Index (OFSI), enabling consistent and objective measurement across respondents.

The stakeholder instrument employed a Likert-scale format to assess sustainability across economic, social, and institutional/governance dimensions, as well as to identify opportunities and challenges related to stakeholder involvement, resource availability, operational feasibility, and sustainability mechanisms. Both instruments underwent content validation through expert review by professionals in food security, community development, and research methodology to ensure alignment with the study objectives. Cultural validity was established through bilingual (English and Filipino/Tagalog) translation, ensuring clarity, inclusivity, and contextual appropriateness for local respondents.

In terms of psychometric properties, the instruments were designed with clear, concise, and structured items to enhance internal consistency and minimize response bias. Pre-testing was conducted among a small group of respondents to refine question wording and improve reliability. The combination of standardized indicators, expert validation, and pilot testing supports the instruments' adequacy in generating valid, reliable, and context-sensitive data for the development of a sustainable community-based food bank framework.

Data Gathering Procedure

The data gathering procedure followed a systematic and structured process to ensure the accuracy, reliability, and validity of the collected data. Prior to data collection, formal permission was secured from relevant local

government units and barangay officials in selected areas of Naga City, and ethical considerations such as informed consent, confidentiality, and voluntary participation were strictly observed. The researcher and trained enumerators conducted in-person survey administration to ensure clarity of instructions and completeness of responses. For household respondents, the Bilingual Household Food Security Survey Questionnaire was administered through guided interviews, allowing respondents to answer in either English or Filipino/Tagalog for better comprehension and cultural appropriateness. For stakeholder participants, the Integrated Stakeholder Survey Questionnaire was distributed and facilitated through coordinated engagements with representatives from LGUs, NGOs, private sector partners, and community organizations to ensure accurate and context-informed responses.

Data collection was conducted within the designated study period of 2025–2026, following a consistent protocol to minimize bias and variability. All accomplished questionnaires were reviewed, encoded, and organized for analysis using appropriate statistical tools. The integration of household and stakeholder data was achieved through methodological triangulation, ensuring a comprehensive understanding of both community needs and institutional capacities. This structured procedure ensured that the data collected were valid, reliable, and aligned with the study's objective of developing a sustainable and context-sensitive community-based food bank framework.

Data Analysis Techniques

This study employed a quantitative and integrative data analysis approach consistent with its exploratory mixed-methods design, focusing primarily on descriptive statistical techniques to analyze data collected from both household and stakeholder respondents. For the household survey, responses from the Bilingual Household Food Security Survey Questionnaire were coded using a binary scoring system (1 = food-secure, 0 = food-insecure) across the four dimensions of availability, accessibility, utilization, and stability. Dimension scores were computed and aggregated to generate the Overall Food Security Index (OFSI), which was used to classify households into food security categories (food insecure, moderately secure, and food secure). Only descriptive statistics such as frequency, percentage, and mean scores were utilized to present and interpret the level of food security among respondents, for simplicity of reporting. Inferential statistics, though deemed essential by the researcher, was demarcated for simplicity of presentation.

For the stakeholder data, responses from the Integrated Stakeholder Survey Questionnaire were analyzed using weighted mean and ranking techniques to evaluate sustainability across economic, social, and institutional/governance dimensions, as well as to identify key opportunities and challenges related to stakeholder involvement, resource availability, operational feasibility, and sustainability mechanisms. The results were interpreted using established scales to determine the level of agreement and significance of each factor.

To strengthen the validity of findings, the study applied methodological triangulation, integrating results from household and stakeholder analyses to identify patterns of convergence and divergence. This integrative analysis informed the development of a comprehensive, evidence-based strategic framework for a sustainable community-based food bank. The chosen data analysis techniques ensured a systematic, objective, and context-sensitive interpretation of data aligned with the study's research objectives.

Ethical Considerations

This study strictly adhered to established ethical principles to ensure the protection, dignity, and well-being of all participants throughout the research process. Prior to data collection, permission was secured from relevant authorities, and all respondents were provided with a clear explanation of the study's purpose, procedures, and their rights through an informed consent process. Participation was entirely voluntary, and respondents were given the option to refuse or withdraw at any point without any consequences. Confidentiality and anonymity were maintained by ensuring that no personally identifiable information was disclosed, and all data were used solely for academic and research purposes. The use of bilingual survey instruments further ensured cultural sensitivity and inclusivity, allowing participants to respond in a language they were comfortable with.

Additionally, the study avoided any form of harm, coercion, or bias, and ensured that data collection and analysis were conducted with integrity, transparency, and respect for the communities involved.

RESULTS

Food Security Conditions of Indigent Households

The findings indicate that most indigent households experience moderate to severe food insecurity, particularly in terms of access and utilization. Although staple foods such as rice are generally available, households frequently reduce meal frequency and dietary diversity due to limited financial capacity. Despite proximity to local markets, respondents consistently identified purchasing power as the primary barrier to adequate food access. Many households depend on donations and informal support systems, reflecting unstable and inconsistent access to food. These results align with national evidence highlighting the vulnerability of urban poor populations to food insecurity (Angeles-Agdeppa et al., 2022).

Sustainability Dimensions of a Food Bank

Stakeholders expressed a generally positive outlook regarding the sustainability of a community-based food bank, particularly in its social and economic dimensions. Respondents emphasized the willingness of local government units, non-governmental organizations, and private sector partners to contribute resources such as surplus food, funding, and logistical support. Social sustainability is further reinforced by the presence of active community volunteers and existing collaborative networks. However, institutional sustainability remains less consistent, as some stakeholders reported gaps in governance structures, policy enforcement, and accountability mechanisms. Moreover, environmental sustainability received comparatively limited attention, although some respondents recognized the potential of food banks to reduce food waste and promote more efficient resource use.

Opportunities for Implementation

The study identifies several enabling conditions that support the feasibility of establishing a food bank in Naga City. These include the availability of surplus food from markets and commercial establishments, as well as the presence of existing facilities within barangays and local government units that could support storage and distribution. The success of previous community pantry initiatives also demonstrates a strong culture of cooperation and collective action. In addition, stakeholders expressed willingness to integrate food bank operations into existing disaster response and relief systems, further enhancing its relevance and potential impact. These findings are consistent with literature emphasizing the importance of coordinated systems in food redistribution efforts (Poblacion et al., 2022).

Challenges and Constraints

Despite these opportunities, several constraints may hinder the effective implementation and sustainability of a food bank. Logistical limitations, including inadequate storage facilities and transportation gaps, were frequently identified as major concerns. Respondents also highlighted the lack of trained personnel, as well as issues related to food safety and liability. Furthermore, the absence of long-term and reliable funding mechanisms poses a significant challenge. Coordination among stakeholders remains inconsistent, and awareness of structured food bank models is still limited. Although there is strong interest in the initiative, these gaps in operational readiness suggest that implementation efforts may remain fragmented without a clear and structured system.

DISCUSSION

Gleaning at the results, a fundamental imbalance between food availability and access, indicating that food insecurity in Naga City is primarily driven by economic constraints rather than supply shortages. This finding reinforces broader evidence that urban food insecurity is closely linked to income limitations and unequal purchasing capacity. While food may be physically accessible, it remains economically out of reach for many indigent households.

The strong willingness of stakeholders to support a food bank highlights its social acceptability and economic feasibility. However, the variability in institutional readiness suggests that long-term sustainability depends on strengthening governance structures, policy frameworks, and accountability mechanisms. Without these, food bank initiatives risk becoming short-term or fragmented interventions rather than sustained solutions.

An important gap identified in the findings is the limited emphasis on environmental sustainability. Although food banks inherently contribute to reducing food waste, this function is not yet fully recognized or prioritized by stakeholders. Integrating environmental considerations, such as systematic food recovery, waste reduction strategies, and sustainable logistics, would enhance the overall effectiveness and sustainability of the initiative.

The convergence of high community need and strong stakeholder support confirms the feasibility of establishing a community-based food bank in Naga City. However, the presence of logistical, institutional, and coordination challenges highlights the necessity of a structured and systems-oriented approach. In response, the study proposes the N.A.G.A. Food Bank Strategic Framework, which emphasizes multi-sectoral collaboration, strengthened governance, and the integration of economic, social, and environmental sustainability principles. Consistent with existing studies (Oldroyd et al., 2022; Pintor et al., 2023), embedding food banks within a coordinated framework is essential to ensure both immediate food relief and long-term food security outcomes.

Limitations Of the Study

Despite the comprehensive design and systematic approach of this study, several limitations must be acknowledged. First, the use of purposive sampling limits the generalizability of the findings, as the results are context-specific to selected barangays in Naga City and may not fully represent other geographic areas or populations. Second, the study relied on self-reported data from both household respondents and stakeholders, which may be subject to recall bias, social desirability bias, or inaccuracies in reporting actual food consumption and institutional capacity. Third, while the study employed descriptive statistical analysis, it did not utilize advanced inferential techniques, thereby limiting the ability to establish causal relationships between variables. Additionally, the assessment of sustainability and operational feasibility is based on perceptions and intended commitments of stakeholders, which may differ from actual implementation outcomes over time.

Moreover, external factors such as economic fluctuations, policy changes, and environmental conditions (e.g., disasters and supply chain disruptions) were not directly controlled but may significantly influence food security and the viability of a food bank model. The study also focused primarily on framework development rather than actual pilot implementation, which limits the ability to evaluate real-world effectiveness and impact. Lastly, while food security was assessed across the four dimensions of availability, accessibility, utilization, and stability, other related factors such as detailed nutritional adequacy and long-term health outcomes were not explored in depth. These limitations highlight the need for future research involving broader samples, longitudinal designs, and pilot testing to further validate and refine the proposed framework.

CONCLUSIONS

This study provides a comprehensive synthesis of findings on the food security conditions of indigent households and the sustainability of establishing a community-based food bank in Naga City. Anchored on the study's objectives, the conclusions affirm the multidimensional nature of food insecurity and the critical role of coordinated, systems-oriented interventions in addressing it. The results validate the proposed framework as a viable and sustainable response to both immediate and long-term food security challenges, consistent with existing literature on food systems and food bank effectiveness (Food and Agriculture Organization, 2023; Oldroyd et al., 2022).

Indigent households in selected barangays of Naga City experience moderate to severe food insecurity, particularly in the dimensions of accessibility and utilization, where economic constraints limit consistent access to nutritious and diverse food. While basic food availability is relatively stable, the findings confirm that food insecurity is primarily driven by financial limitations and vulnerability to external shocks, supporting the multidimensional framework of food security.

The establishment of a community-based food bank in Naga City is perceived to be sustainable across economic, social, and institutional dimensions, with strong stakeholder willingness, availability of surplus food resources, and potential funding mechanisms. However, institutional sustainability requires strengthening in terms of governance structures, policy implementation, and accountability systems to ensure long-term viability.

There are significant opportunities for food bank implementation, including existing LGU support systems, community engagement practices, and resource availability from multiple sectors. These opportunities indicate a favorable environment for institutionalizing a food bank model that integrates relief efforts with sustainable food redistribution mechanisms (Poblacion et al., 2022).

Despite these opportunities, key challenges persist, particularly in logistics, storage capacity, transportation, coordination among stakeholders, and long-term financing. The presence of these constraints highlights the limitations of fragmented and short-term food assistance initiatives and underscores the need for a structured and governance-driven approach. The development of the N.A.G.A. Food Bank Strategic Framework effectively integrates food security needs, resource mobilization, stakeholder collaboration, and sustainability mechanisms, demonstrating that a systems-oriented and multi-sectoral approach can transform existing resources and stakeholder willingness into a sustainable, scalable, and resilient intervention for urban food insecurity. This confirms that a well-designed food bank model can contribute not only to immediate hunger alleviation but also to long-term social protection and sustainable urban development (Oldroyd et al., 2022; Pintor et al., 2023).

RECOMMENDATIONS

Building on the empirical findings of this study, the following recommendations are advanced to translate evidence into actionable, policy-relevant, and sustainable interventions for addressing food insecurity in Naga City. The results clearly demonstrate that while indigent households experience persistent multidimensional food insecurity, there exists strong stakeholder willingness, resource availability, and institutional potential that remain underutilized due to fragmented systems and operational constraints. Consistent with global and local literature, effective food security interventions require integrated, governance-driven, and multi-sectoral approaches that link immediate relief with long-term sustainability (Food and Agriculture Organization, 2023; Oldroyd et al., 2022; Poblacion et al., 2022). Thus, the following recommendations are aligned with the study's objectives and grounded in the data generated from both household and stakeholder analyses.

Food Security Conditions of Households

To address the identified moderate to severe food insecurity, particularly in accessibility and utilization, it is recommended that LGUs establish a data-driven, barangay-level food security surveillance and targeting system anchored on the four dimensions of availability, accessibility, utilization, and stability. This system should be integrated into existing social protection, nutrition, and disaster response programs to ensure targeted, timely, and equitable food assistance. In addition, programs such as nutrition education, supplemental feeding, and livelihood support should be implemented to enhance dietary diversity and reduce economic barriers to food access, thereby improving overall household food security outcomes.

Sustainability of the Food Bank

Given the high level of stakeholder willingness and perceived sustainability, it is strongly recommended that the Naga City LGU institutionalize the initiative through a formal ordinance establishing the N.A.G.A. Food Bank, ensuring dedicated funding, policy continuity, and governance structures. Multi-sectoral partnerships should be formalized through binding agreements involving LGUs, NGOs, private sector entities (CSR initiatives), academic institutions, and faith-based organizations to ensure a steady flow of food resources, financial support, and operational capacity. Furthermore, the establishment of robust accountability mechanisms—including regular audits, transparent reporting systems, and community oversight—will be critical in sustaining trust and long-term viability.

Opportunities and Challenges in Implementation

To overcome the identified logistical and operational constraints, it is recommended to develop a centralized and technologically supported food bank operations system, including investments in storage infrastructure (e.g., warehouses and cold storage), transportation networks, and digital inventory management systems. Capacity-building initiatives should be conducted to train personnel and volunteers in food safety, handling, and logistics coordination to ensure compliance with standards and minimize waste. Additionally, awareness and advocacy campaigns should be implemented to strengthen stakeholder engagement and address gaps in coordination and understanding of the food bank model, thereby maximizing existing opportunities and resources.

Strategic Framework Implementation

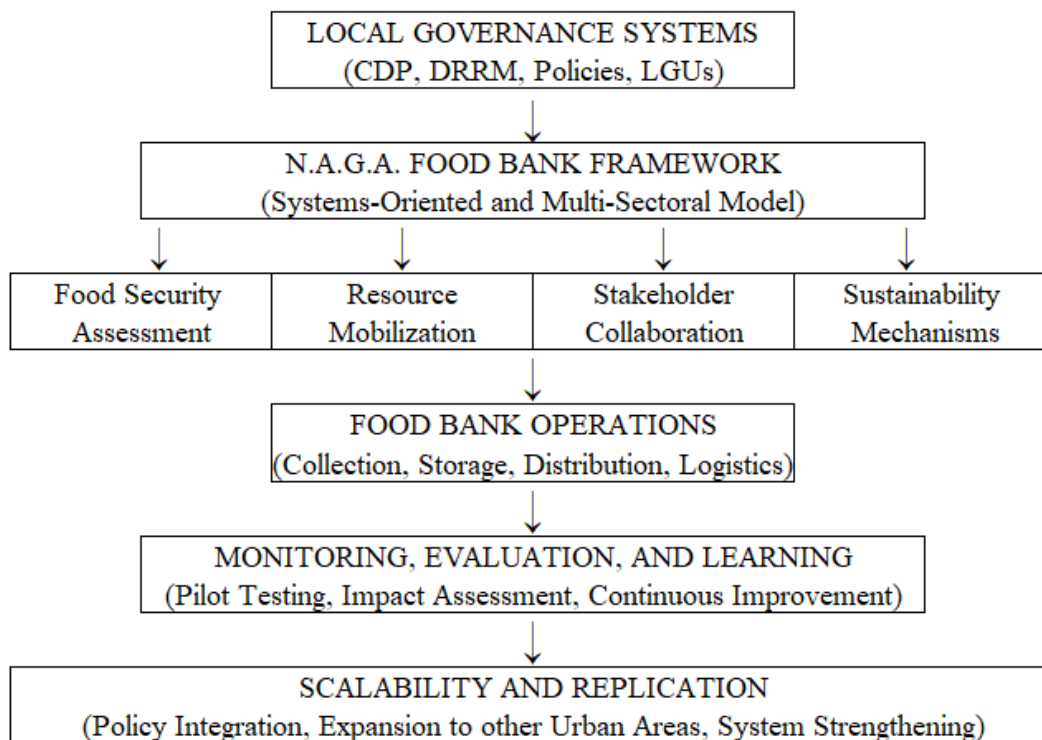


Figure 1. N.A.G.A. Food Bank Strategic Framework

To ensure sustainability and scalability, it is recommended that the N.A.G.A. Food Bank Strategic Framework be formally adopted and integrated into local governance systems, including city development plans and disaster risk reduction and management (DRRM) strategies. The framework should serve as a guiding model for coordinated action, linking food security assessment, resource mobilization, stakeholder collaboration, and sustainability mechanisms into a unified system. Pilot implementation, continuous monitoring, and impact evaluation are further recommended to refine the model and support evidence-based scaling and replication in other urban areas facing similar challenges. This aligns with existing studies emphasizing that food banks are most effective when embedded within coordinated, policy-supported, and sustainability-driven systems (Oldroyd et al., 2022; Pintor et al., 2023).

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