

Local Champions and Community Empowerment for Sustainable Food Security: A Social Studies and Geography Education Perspective in Semarang City

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ABSTRACT

Background/purpose. Food security has emerged as a critical issue amid rapid urbanization and the impacts of climate change. Although the City of Semarang demonstrates a relatively high Food Security Index, it remains vulnerable due to its reliance on external supply sources, land-use conversion, and climate-related risks. This study aims to examine the role of local champions as a strategy for achieving sustainable food security, with particular attention to the contributions of grassroots actors such as the Women Farmers' Group (Kelompok Wanita Tani/KWT), Tourism Awareness Group (Pokdarwis), Family Welfare Movement Working Group (Pokja PKK), and Integrated Health Service Post (Posyandu). Materials/methods. This study employs a qualitative approach within a naturalistic–interpretive paradigm, utilizing data collection techniques such as observation, in-depth interviews, Focus Group Discussions and document analysis. The data analysis process is carried out through the

stages of reduction, presentation, and conclusion drawing. Results. Local champions serve as key drivers in food production, nutrition education, local product marketing, and in bridging the food and tourism sectors. KWT focuses on optimizing the use of home gardens, the Pokdarwis creates new market opportunities through culinary-based agrotourism, the Pokja PKK promotes the diversification of healthy food consumption, and the Posyandu functions as an early warning system for nutritional issues. Collaboration and interconnectedness among these champions strengthen the local food ecosystem. Conclusion. A local champion-oriented strategy positions the community as the primary driving force, with the government acting as a supporter and facilitator. This approach evolves organically, fosters active participation, and remains sustainable as it is rooted in initiatives originating from the community itself.

Keywords: Community Empowerment, Food Security, Local Champion, Semarang City, Urban Farming .

INTRODUCTION

One of the Sustainable Development Goals (SDGs), specifically Goal 2, is to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture. The urgency of this objective is increasingly evident amidst evolving global challenges. Data from the World Food Programme (WFP) in 2025 indicates that approximately 343 million people across 74 countries face acute food insecurity, a figure that is 10% higher than in 2023. Conflicts, economic shocks, and climate change are the primary drivers of this crisis.

At the national level, Indonesia confronts similar challenges. Although progress has been made, data from the Ministry of Agriculture in 2020 revealed that 15.8% of regencies and 4% of cities in Indonesia still have a low Food Security Index (FSI), with significant disparities between the western and eastern regions of the country.

As a metropolitan area, the city of Semarang faces serious challenges in maintaining its food security. Despite having a relatively high FSI of 91.31 in 2023, ranking 9th out of 98 cities in Indonesia, Semarang is heavily dependent on food supplies from other regions. This dependency renders the city highly vulnerable to price shocks and supply chain disruptions.

This vulnerability is exacerbated by the massive conversion of productive agricultural land due to rapid urbanization. Housing and industrial development continue to erode farmland, threatening local food production capacity. Furthermore, Semarang is exposed to significant climate risks, such as floods, tidal flooding (*rob*), and landslides, which can directly damage agricultural land and disrupt food production.

Amidst these structural challenges, various community-driven initiatives have emerged, spearheaded by local champions. These are individuals or community groups, such as Women Farmers' Groups (Kelompok Wanita Tani - KWT), Tourism Awareness Groups (Kelompok Sadar Wisata - Pokdarwis), and Integrated Health Post (Posyandu) cadres, who are dedicated to empowering their communities to achieve food sovereignty through the utilization of local resources. This research focuses on analyzing the vital role of these local champions as a model for a sustainable, community-based food security strategy in Semarang by understanding their perspectives, and contributions, and designing a replicable strategic model.

LITERATURE REVIEW

The Global and National Imperative for Food Security

The pursuit of sustainable food security is a critical global agenda, formally recognized within the Sustainable Development Goals (SDGs), particularly Goal 2: "End hunger, achieve food security and improved nutrition, and promote sustainable agriculture" (Barua et al., 2017; Hall, J. K., 2010; Munro, 2020; Vijay & Sathish, 2024; Zhang et al., 2023). The urgency of this objective is profoundly amplified by escalating global challenges. Projections from the World Food Programme (WFP) for 2025 underscore a worsening crisis, estimating that approximately 343 million people across 74 nations will face acute food insecurity. This alarming figure represents a 10% increase from 2023 and is driven by a complex interplay of protracted conflicts, severe economic shocks, and the escalating impacts of climate change.

This global precarity is mirrored at the national level in Indonesia. Despite concerted governmental efforts, ensuring food security remains a paramount strategic challenge. A 2020 report from the Ministry of Agriculture revealed that 15.8% of regencies and 4% of cities still exhibit a low Food Security Index (IKP). These statistics highlight a significant disparity in food access and availability, particularly between the more developed western regions of Indonesia and the eastern territories, which continue to face substantial infrastructural and economic hurdles.

The Semarang Context: Urban Vulnerabilities and Emerging Pressures

As a major metropolitan hub, the city of Semarang confronts a unique paradox in its food security landscape. On the one hand, the city boasts a relatively high Food Security Index of 91.31 as of 2023, placing it 9th among 98 cities in Indonesia. This achievement, however, masks significant underlying vulnerabilities. Semarang's food system is heavily reliant on supplies from external agricultural regions, making it susceptible to supply chain disruptions and volatile price shocks (Jabareen, 2013; Prajanti, S. D. W., & Utami, 2019; Wan et al., 2021; Wielemaker et al., 2019; Zhumadilova et al., 2024).

Looking toward 2025, this vulnerability is set to intensify due to compounding urban pressures. Rapid and relentless urbanization continues to drive the massive conversion of productive agricultural land into housing and industrial zones, systematically eroding the city's local food production capacity (Arif Purnomo, Ferani Mulianingsih, 2025; Ferani Mulianingsih, 2022; Mulianingsih et al., 2025; Purnomo et al., 2024; Purnomo & Mulianingsih, 2021; Shafira & Mulianingsih, 2025). Furthermore, Semarang is located in a region exposed to significant climate-related risks, including recurrent flooding, coastal tidal floods (*rob*), and landslides, all of which pose a direct and immediate threat to a secure and resilient local food system. It is within this challenging context of structural dependencies and environmental threats that community-driven initiatives have emerged, not merely as a response but as a necessary strategic adaptation.

Multisectoral Dimensions of Food Security Challenges

A comprehensive review of existing literature confirms that the challenge of achieving sustainable food security is profoundly multifaceted, transcending any single discipline or sector (Närvä et al., 2024; Rahman et al., 2019; Rasool et al., 2024; Willett et al., 2019). Previous scholarly work has extensively mapped the key dimensions of this complex issue.

Socio-Cultural and Geopolitical Factors

Fundamental non-economic factors play a crucial role in shaping food systems. (Goshovska et al., 2025; Singh & Roca, 2022; H. Wang, 2014) argues compellingly that culture is a primary determinant in how societies acquire, process, prepare, and consume food. Deeply embedded social constructs, such as gender roles within the household, family structures, and local traditions, significantly influence dietary patterns and nutritional access. The critical implication of this finding is that top-down food security policies that fail to be culturally sensitive and tailored to local social contexts are unlikely to be effective or sustainable. A "one-size-fits-all" approach neglects the rich tapestry of local knowledge and practice that can be leveraged for greater food resilience.

Beyond the cultural sphere, (Carnegie, 2008; Song et al., 2016, 2017; W. Wang et al., 2014) highlight the critical geopolitical dimension of food, where it can be transformed from a basic necessity into an instrument of political leverage. Economically powerful nations with significant food surpluses can potentially use this advantage to dictate political terms to import-dependent countries. This reality underscores the vital importance of national food self-sufficiency, not merely as an economic goal but as a cornerstone of maintaining national sovereignty and buffering against external political pressures.

Specific Challenges in the Indonesian Context

Within Indonesia, the path to food security is further complicated by a set of divergent and conflicting trends. (Godfray et al., 2010; Sumarwati, 2022) identifies a growing gap between food supply and demand. On one side, the growth of food production is decelerating due to a host of constraints, including the aforementioned conversion of productive agricultural land, environmental degradation, and the increasingly tangible impacts of climate change. On the other side, demand for food continues to surge, propelled not only by steady population growth but also by rising incomes and shifting dietary preferences among a growing middle class. This widening chasm between domestic supply and demand necessitates a paradigm shift towards collaborative, multi-stakeholder approaches that involve all segments of society.

Adding another layer of complexity, (Fahira et al., 2019, 2020; Sarwinda et al., 2020) identifies food loss and waste as a severe yet often-overlooked problem within the Indonesian food system. His research indicates that a staggering 30% of total food production is lost or wasted along the supply chain. While some efforts have been made to address losses at the production and post-harvest stages, interventions at the downstream level specifically among retailers and consumers remain limited and underutilized. Reducing consumer-level food waste represents a critical, high-impact strategy for strengthening national food security that has yet to be fully explored or implemented.

Research Gap: The Untapped Potential of Grassroots Strategy

This established body of literature comprehensively outlines the complexity of food security, weaving together its cultural, political, economic, and environmental threads (Benu et al., 2024; Cahyono et al., 2022; Riry et al., 2022). However, the role of grassroots movements and community-led initiatives in addressing these challenges remains largely unexplored. This research gap highlights the need for a more nuanced understanding of how local actors can leverage their knowledge and resources to build resilient food systems.

2021). However, a significant research gap persists: a specific and focused examination of community-led, grassroots initiatives as a formalized strategic model. Much of the existing research has centered on macro-level, top-down policy interventions, leaving the efficacy and mechanics of bottom-up movements comparatively under-analyzed.

This study is designed explicitly to address this gap by focusing on the pivotal role of "local champions". The novelty of this research lies in its conceptual framing of these local champions encompassing dedicated individuals and organized community groups such as the Women Farmers Group (KWT), Tourism Awareness Group (Pokdarwis), Family Welfare Movement (PKK), and Integrated Health Post (Posyandu) cadres not as isolated actors, but as a cohesive and replicable strategic model. The central aim is to analyze how these grassroots actors collectively contribute to building a resilient, adaptive, and sustainable urban food system from the ground up, driven by local wisdom, resources, and commitment.

METHODOLOGY

Research Design and Philosophical Underpinnings

This study employs a qualitative research design, anchored in a naturalistic-interpretive paradigm (Creswell, 2016; Creswell John W., 2018; Huberman, 2005). This approach was deliberately chosen as it is exceptionally suited for exploring the complex, socially constructed realities of community-led initiatives. Unlike quantitative methods that seek to measure and generalize, this research aims to achieve a deep, contextualized understanding (*verstehen*) of the role of "local champions" in building sustainable food security. The focus is on the meanings, motivations, and perspectives that these individuals and groups attach to their actions and experiences. The qualitative methodology allows for an in-depth exploration of the processes, events, and authentic lived experiences that constitute the grassroots food security movement in Semarang.

The philosophical foundation of this study is influenced by the Weberian interpretive tradition, which emphasizes understanding social phenomena from the viewpoint of the actors involved. Furthermore, it draws upon tenets of post-positivism and critical theory, acknowledging that social reality is complex and that research should not only describe but also critically analyze the underlying dynamics of community empowerment and structural challenges. This framework is ideal for constructing a nuanced narrative of how local champions navigate their socio-economic and environmental contexts, thereby generating rich, meaningful data that captures the intricacies of their contributions beyond mere statistical representation.

Research Locus and Justification

The research was conducted in Semarang City, the provincial capital of Central Java, Indonesia. The selection of Semarang as the research locus is strategic and purposeful, as the city represents a compelling case study of the challenges confronting food security in a rapidly urbanizing metropolitan area in a developing nation. Semarang presents a unique paradox: on one hand, it demonstrates a commendably high Food Security Index (IKP) of 91.31 in 2023, ranking it 9th among 98 cities across Indonesia. This statistic, however, belies significant underlying vulnerabilities that threaten its long-term sustainability.

The city's food system is characterized by a heavy dependency on agricultural supplies from external regions, rendering it highly susceptible to price shocks and disruptions in the supply chain. This vulnerability is projected to intensify by 2025, compounded by relentless urban pressures. The rapid and often unchecked conversion of productive agricultural land for housing and industrial development continues to systematically erode the city's local food production capacity. Furthermore, Semarang's geographical location exposes it to significant climate-related hazards, including recurrent flooding, coastal tidal floods (*rob*), and landslides, which pose an immediate and direct threat to agricultural land and the stability of the local food system. It is within this complex nexus of high performance, structural dependency, and escalating environmental threats that community-driven initiatives led by local champions have emerged as a critical strategic adaptation. Therefore, Semarang provides a rich and dynamic context for investigating the efficacy and replicability of bottom-up, community-based models for fostering urban food resilience.

Research Participants and Informant Selection

The primary participants in this research were the "local champions," defined as dedicated individuals and organized community groups who actively initiate and sustain efforts to enhance food security and sovereignty within their communities by leveraging local resources. The study focused specifically on several key grassroots organizations that are central to community life in Semarang, including the Women Farmers' Groups (*Kelompok Wanita Tani* - KWT), Tourism Awareness Groups (*Kelompok Sadar Wisata* - Pokdarwis), cadres of the Family

Welfare Movement (*Pembinaan Kesejahteraan Keluarga* - PKK), and cadres from the Integrated Health Posts (*Pos Pelayanan Terpadu* - Posyandu).

A purposive sampling strategy was employed to select informants. This non-probability technique was used to identify and select individuals and groups who are particularly knowledgeable about or experienced with the phenomenon of interest. Key informants were chosen based on their recognized leadership roles, active and sustained involvement in food security initiatives, and their ability to provide articulate, in-depth reflections on their experiences. This included leaders of KWT groups, innovators within Pokdarwis who link tourism with local cuisine, influential PKK cadres responsible for family nutrition programs, and senior Posyandu cadres who monitor community health. To ensure a multi-stakeholder perspective, the sample also included representatives from relevant government agencies (e.g., the Food Security Agency, Agriculture Department) who were involved in Focus Group Discussions to provide institutional context and perspectives on collaboration.

Data Collection Techniques

A multi-method approach to data collection was utilized to ensure a comprehensive and triangulated understanding of the research topic. Data were gathered through participant observation, in-depth interviews, Focus Group Discussions (FGDs), and document analysis.

- **Participant Observation:** Researchers engaged in direct, prolonged observation of the local champions' activities. This involved attending KWT meetings and urban farming activities, observing the development and marketing of culinary products by Pokdarwis, participating in PKK nutritional counseling sessions, and observing the operations of Posyandu health check-ups. This immersive method provided firsthand, contextual data on the practical application of their strategies, internal group dynamics, and interactions with the wider community.

- **In-depth Interviews:** Semi-structured interviews were conducted with key local champions to delve deeply into their personal perspectives, motivations, strategies, perceived successes, and the challenges they face. An interview guide was developed to ensure consistency across key thematic areas, yet the format allowed for flexibility, enabling researchers to probe emergent topics and follow the natural flow of conversation. These interviews were crucial for capturing the rich narratives and lived experiences that underpin their commitment.

- **Focus Group Discussions (FGDs):** FGDs were organized with representatives from the different local champion groups (KWT, Pokdarwis, PKK, Posyandu) as well as officials from local government bodies. These sessions served two primary functions: first, as a form of member checking to triangulate and validate the findings from observations and individual interviews; and second, to foster a dynamic dialogue among stakeholders to collaboratively explore challenges and co-develop a robust, replicable strategic model for food security.

- **Document Analysis:** To supplement the primary data, a systematic analysis of relevant documents was performed. This included reviewing activity reports and internal records from the community groups, analyzing official data and policy documents from the Semarang City Food Security Agency, and examining local media publications and reports related to urban farming and community initiatives. This technique provided essential historical context, statistical data, and a broader institutional framework for the on-the-ground activities observed.

Data Analysis Procedure

The data analysis process was conducted using an interactive model, which treats analysis not as a final, discrete stage but as an ongoing and iterative process that occurs concurrently with data collection. This model involves three interconnected flows of activity: data reduction, data display, and conclusion drawing/verification.

- **Data Reduction:** This stage began immediately following the initial data collection and continued throughout the study. It refers to the process of selecting, focusing, simplifying, abstracting, and transforming the vast amounts of "raw" data from field notes, interview transcripts, recordings, and documents. The research team systematically coded the data, identifying key themes, patterns, and categories related to the research questions, such as champions' perspectives, forms of contribution, and challenges encountered.

- **Data Display:** After reduction, the data was organized and compressed into formats that facilitate analysis and understanding. This involved creating structured displays such as matrices, charts, conceptual maps, and thematic networks. For instance, a matrix was developed to compare the specific activities and impacts of KWT, Pokdarwis, PKK, and Posyandu. This systematic display of data enabled the researchers to identify relationships, trends, and contradictions in the dataset more easily.

- **Conclusion Drawing and Verification:** This is the final analytical activity, where researchers interpret the reduced and displayed data to formulate substantive conclusions. This process was iterative and rigorously verified. Conclusions were continuously tested for their plausibility and robustness by revisiting the raw data and the data displays. Triangulation cross-validating findings across the different data sources (observation, interviews, FGDs, and documents) was a critical verification strategy to enhance the credibility and trustworthiness of the final interpretations.

RESULTS

The Synergistic Role of Local Champions in Forging a Resilient Urban Food Ecosystem

The findings of this research reveal that the strength of Semarang City's community-based food security strategy lies not in the isolated actions of individual groups, but in the intricate and synergistic ecosystem forged by its diverse *local champions*. These grassroots actors, including the Women Farmers' Groups (KWT), Tourism Awareness Groups (Pokdarwis), Family Welfare Movement (PKK), and Integrated Health Posts (Posyandu), function as interconnected pillars supporting a resilient local food system. Against the backdrop of Semarang's paradoxical status possessing a high Food Security Index of 91.31 in 2023 yet facing escalating vulnerabilities from external supply dependency, rapid urbanization, and climate risks projected to intensify by 2025 this community-driven model emerges as a vital bottom-up strategy for sustainable urban resilience.

Kelompok Wanita Tani (KWT): The Engine of Hyper-Local Production and Women's Empowerment

At the foundational level of this ecosystem, the KWT groups serve as the primary engines of food production and social empowerment. They are the principal actors in the widespread adoption of urban farming, masterfully optimizing underutilized domestic spaces such as home gardens and narrow alleyways for productive agriculture. This practice is a clear manifestation of human-environment adaptation within a densely populated urban landscape. From a Geography Education perspective, the KWTs are actively transforming sterile urban pockets into productive green landscapes. This not only enhances the physical availability of fresh, nutritious food at the most granular level, the household, but also contributes to urban biodiversity, micro-climate regulation, and a more sustainable urban metabolism. Their work directly addresses the core pillar of food *availability*, reducing reliance on volatile external supply chains for daily necessities.

From a Social Studies Education perspective, the involvement of women in KWT transcends mere agricultural production; it is a profound process of socio-economic empowerment. Through their participation, members acquire valuable skills in modern agricultural techniques, composting, and financial management. This engagement often translates into supplemental household income, granting them greater economic agency and strengthening their decision-making power within both the family and the broader community. The KWTs thus exemplify a model of participatory development, where community members are not passive recipients of aid but active agents in building their own food sovereignty and enhancing social capital.

Pokdarwis: Bridging Local Agriculture with the Creative Economy

The Pokdarwis groups introduce an innovative dimension to the ecosystem by strategically bridging the gap between local food production and the creative tourism economy. Rather than allowing local produce to be absorbed into anonymous commodity markets, Pokdarwis innovates by developing culinary-based agrotourism and creating vibrant marketplaces for locally processed products that appeal to both residents and tourists. These initiatives transform the agricultural output of KWTs into unique, marketable experiences and goods.

From the lens of Geography Education, this represents a stellar example of place-based development. Pokdarwis leverages the unique agricultural character of a neighborhood to cultivate a distinct "sense of place," making local food a primary tourist attraction. This creates new, localized value chains that directly improve *economic access* to food for producers by diversifying their income streams. They are, in effect, redesigning the local economic geography by creating destinations where food, culture, and commerce intersect, thereby strengthening the community's economic resilience.

The Social Studies Education perspective highlights how Pokdarwis functions as an incubator for a grassroots creative economy. This model demonstrates how a community can build inclusive economic structures from the ground up. By creating a direct pathway from the producer (KWT), to the processor (home-based enterprises), and finally to the consumer (tourists and local patrons), Pokdarwis ensures that the economic benefits are retained and circulated within the community. This fosters local entrepreneurship, strengthens social cohesion, and builds a more equitable economic system that is less susceptible to external market shocks.

Pokja PKK and Posyandu: Guardians of Nutrition and Public Health

While KWT and Pokdarwis strengthen the production and economic access pillars, the Family Welfare Movement Working Group (Pokja PKK) and the Integrated Health Posts (Posyandu) are the central agents reinforcing the critical pillars of food *utilization* and *stability*. The PKK cadres are at the forefront of community education, actively campaigning for dietary diversification by promoting nutritious recipes that utilize locally sourced ingredients often grown by the KWTs. This is a powerful form of social education aimed at shifting long-term consumption behaviors away from monotonous, often less nutritious, staples and towards a healthier, more sustainable diet. Their work builds nutritional literacy and ensures that the food available in the community is effectively converted into positive health outcomes.

Complementing this educational role, the Posyandu serves as a vital community-based public health surveillance system. By regularly monitoring the nutritional status of infants and toddlers, Posyandu functions as an indispensable early warning system for detecting malnutrition and stunting, which are the most severe manifestations of household-level food insecurity. From a Health Geography perspective, the extensive network of Posyandu posts across Semarang can be mapped to analyze the spatial distribution of and access to basic health services, providing critical data for identifying at-risk populations and targeting interventions. The work of PKK and Posyandu ensures that the local food system is not only productive but also genuinely contributes to the long-term health and well-being of the community.

Synergy in Action: A Resilient, Interconnected Food Web

The ultimate strength of the *local champion* model in Semarang lies in the profound synergy and interconnectedness among these actors. It is not a linear chain but a resilient, adaptive web of collaboration. The KWT produces the raw ingredients; the PKK provides the knowledge to transform those ingredients into nutritious meals; and the Pokdarwis creates economic opportunities to market both the fresh produce and value-added products. This informal yet robust network creates a localized food ecosystem that is inherently more resilient than a rigid, top-down, single-source supply chain. It is capable of withstanding external shocks precisely because it is decentralized, diverse, and built on a foundation of social trust and mutual support. This model effectively inverts the traditional policy paradigm, shifting from a top-down, government-dictated approach to a bottom-up movement where the government's optimal role becomes that of a supporter, enabler, and facilitator for community-led innovation.

DISCUSSION

Discussion: The Synergy of Local Champions in Weaving a Resilient Urban Food Ecosystem

This study reveals a foundational finding: the strength of the community-based food security strategy in Semarang City lies not in isolated actions but in a complex, synergistic, and mutually reinforcing ecosystem forged by a diverse array of local champions. These grassroots actors encompassing the Women Farmers' Groups (KWT), Tourism Awareness Groups (Pokdarwis), and cadres from the Family Welfare Movement (PKK) and Integrated Health Posts (Posyandu) function as interconnected pillars supporting a resilient local food system. This finding becomes critically relevant when situated within the context of the paradox confronting Semarang: on one hand, the city boasts a high Food Security Index (IKP) of 91.31 in 2023. On the other, it faces vulnerabilities that are projected to intensify by 2025, driven by a heavy dependence on external supply chains, uncontrolled urbanization, and escalating climate risks. Within this context, the community-driven model emerges as a vital bottom-up adaptive strategy, crucial for urban sustainability.

A Spatial Response to Urbanization and the Land Crisis

One of the most significant challenges identified within the broader context of Indonesian food security is the conflicting trend between decelerating food production growth stemming from constraints like the conversion of productive agricultural land and perpetually rising demand (Gravitani et al., 2025; Gunawan et al., 2024; Vinolina & Supriana, 2025). The findings of this research demonstrate that the practices initiated by local champions, particularly the KWT, constitute a direct and intelligent response to this challenge. From a Geographical Education perspective, the activities of KWT in optimizing neglected domestic spaces such as home yards, narrow alleys, and even building rooftops for urban farming represent a tangible manifestation of human-environment adaptation within a densely populated urban landscape.

This practice transcends mere vegetable cultivation; it is a fundamental spatial reconfiguration that transforms sterile urban pockets into productive green landscapes. This directly addresses a core pillar of food security availability by mitigating dependence on external supply chains that are inherently vulnerable to price shocks and logistical disruptions. With projections indicating that land conversion pressures in Semarang will significantly increase by 2025, the role of KWT in maximizing every available square meter shifts from being a merely beneficial activity to a crucial survival strategy. It becomes the bedrock for hyper-local food production and a foundational element of a sustainable urban metabolism.

Culture-Based Strategies: Empowerment and Food Utilization

(Roberts et al., 2023) has asserted that food security policies neglecting local cultural aspects tend to be ineffective and unsustainable. This study's findings affirm this argument, demonstrating that the success of local champions is heavily predicated on strategies deeply embedded within the community's social and cultural fabric.

Viewed through the lens of Social Science Education, the role of PKK and Posyandu cadres extends far beyond technical counseling; they are deeply rooted agents of behavioral change.

The food diversification campaigns championed by the PKK, which promote nutritious recipes utilizing local ingredients harvested by the KWT, are a potent form of social education. This directly engages the utilization pillar of food security, ensuring that available food is effectively converted into positive health outcomes. Concurrently, the Posyandu functions as a community-based public health surveillance system, serving as the frontline in detecting malnutrition and stunting the most severe manifestations of household-level food insecurity. Furthermore, the involvement of women in KWT is not merely an agricultural production process but a profound socio-economic empowerment mechanism, which enhances social capital and decision-making capacity at the community level. This illustrates how a culturally sensitive, bottom-up approach can build resilience from within, a feat that top-down interventions often fail to achieve.

Local Economic Sovereignty and Food Waste Mitigation

Semarang's vulnerability to external supply chains underscores the importance of self-sufficiency, a concept that (Ferani Mulianingsih, Andarweni Astuti, Amin Pujiati, 2025; Ferreira et al., 2022; Sharma, 2021; Suwarno et al., 2022) identify as a pillar of national sovereignty. The local champion model in Semarang translates this macro-level concept to the micro-community scale. Pokdarwis, with its innovations in developing culinary agrotourism and markets for locally processed products, strategically bridges agricultural production with the creative economy. They create new, localized value chains that directly enhance economic access for producers by diversifying their income streams.

This model effectively builds economic sovereignty at the neighborhood level, ensuring that the financial benefits derived from food production remain and circulate within the community. Moreover, this ultra-short supply chain model from KWT producers to Pokdarwis processors and marketers inherently mitigates the problem of food loss and waste. This issue was identified by (Mulianingsih et al., 2025; Närvä et al., 2024) as a critical problem, with approximately 30% of Indonesia's food production being wasted. By promoting the consumption of fresh and locally processed products, these local champions are indirectly implementing one of the most effective strategies for reducing waste at the downstream level, specifically among consumers.

Filling the Research Gap: The Synergistic Ecosystem as a Strategic Model

The primary novelty of this research lies in its framing of local champions not as isolated actors, but as a cohesive and replicable strategic model. The existing literature has predominantly focused on top-down policy interventions, leaving a significant gap in the analysis of the effectiveness of bottom-up movements as a formal strategy. This study explicitly addresses this gap by demonstrating how the synergy among these actors is the key to their success.

This is not a linear chain but an adaptive and resilient collaborative web: the KWT produces the raw materials; the PKK provides the knowledge to transform them into nutritious food; Pokdarwis creates the economic opportunities to market them; and Posyandu monitors their impact on public health. This informal yet robust network creates a local food ecosystem that is inherently more resilient to external shocks due to its decentralized, diverse, and trust-based nature. This model effectively inverts the traditional policy paradigm, shifting the role of government from that of a primary determinant to a facilitator and enabler of community-led innovation. Consequently, the local champion model offers a practical and tested blueprint for other cities facing similar challenges to navigate the complex landscape of 21st-century food security (Keller, 2020; Kintoko & Mulianingsih, 2022).

CONCLUSION

A food security strategy oriented around local champions in Semarang City is conclusively proven to be a highly effective model for empowering communities and weaving a resilient and sustainable urban food system. The fundamental strength of this approach lies not in singular initiatives but in a complex, synergistic ecosystem wherein each component plays a mutually reinforcing role. This model becomes particularly relevant in addressing the paradox faced by Semarang: a city with a high Food Security Index (FSI) of 91.31 in 2023, yet concurrently confronting deep-seated structural vulnerabilities. These vulnerabilities, projected to intensify by 2025, are driven by a massive dependency on external food supplies, a rate of urbanization that erodes productive land, and the escalation of climate risks such as flooding and tidal inundation (*rob*). In this critical context, the community-driven model is no longer merely an alternative but an essential bottom-up adaptive strategy.

The success of this model is rooted in several fundamental pillars. First, it is entirely community-based, with initiatives emerging organically from the identification of local needs and the utilization of local potential. This

fosters a high sense of ownership among residents, ensuring long-term sustainability that is often unachieved by top-down interventions. Second, the approach is multidimensional, intelligently addressing the core pillars of food security simultaneously. The availability of food is enhanced by the Women Farmers Groups (KWT), which optimize every inch of urban space for productive agriculture. The access pillar, both physical and economic, is expanded by the Tourism Awareness Groups (Pokdarwis), which create new value chains through agrotourism and local product markets. Finally, the utilization and nutritional stability pillars are upheld by cadres of the Family Welfare Movement (PKK) and the Integrated Health Post (Posyandu), who serve as the frontline for nutrition education and public health monitoring.

Third, this model is inherently inclusive and empowering. By assigning central roles to women's groups through the KWT and PKK, the strategy not only increases food production but also significantly elevates the capacity, economic agency, and social capital of women within the community. This is a tangible manifestation of equitable development, where food security is achieved in tandem with the strengthening of gender equality and social cohesion.

From the perspectives of Social Studies Education and Geography, the local champions model in Semarang offers an exceptionally rich case study. Geographically, it is a clear manifestation of human-environment adaptation within a dynamic urban landscape, where communities creatively reconfigure urban space for sustainability. From a Social Studies viewpoint, the model presents valuable lessons on participatory local economic development, social empowerment through grassroots movements, and the importance of collaborative governance in resolving complex issues like urban food security.

Consequently, the primary recommendation stemming from this research is the urgent need for the local government to proactively shift its role from that of a primary implementer to a facilitator and enabler. The government must actively support, facilitate, and strengthen this synergistic network of local champions, recognizing them as a central pillar of the city's food security strategy. Only then can Semarang build the genuine resilience required to face the food challenges that are projected to become increasingly severe in the future.

SUGGESTION

Based on the research findings, this study proposes several strategic recommendations to fortify Semarang City's urban food system, particularly in anticipation of the challenges projected for 2025. The primary suggestion is for the local government to proactively transition its role from a primary program implementer to a dedicated facilitator and enabler of the synergistic network of local champions. This strategic shift is imperative, given that the city's structural vulnerabilities including its heavy reliance on external food supplies, the unabated conversion of productive agricultural land due to urbanization, and escalating climate-related risks like flooding are projected to intensify significantly by 2025.

To operationalize this new role, the government should focus on creating an enabling policy environment that formally recognizes and integrates the contributions of grassroots actors like the KWT, Pokdarwis, PKK, and Posyandu into the official municipal food security strategy. Furthermore, targeted resources should be allocated to support community-led innovations, such as providing subsidies for climate-adaptive urban farming technologies (e.g., vertical farming and hydroponics) to counteract land scarcity and promoting flood-resilient agricultural infrastructure. By actively supporting and scaling up these proven, bottom-up initiatives, Semarang can build genuine, decentralized resilience, ensuring its capacity to navigate the complex food security landscape of the future.

Declarations

Author Contributions

- Muh Sholeh: Coordinated and took responsibility for all research activities, including proposal and instrument design, team coordination, data source communication, drafting the research article and Intellectual Property Rights (IPR) application, and preparing the final research report.
- Ferani Mulianingsih: Contributed to the proposal and instrument design, managed team coordination schedules, communicated with information sources, and assisted in drafting the research article and IPR application.
- Aisyah Nur Sayidatun Nisa: Involved in designing the research proposal and instruments, coordinating the team's schedule, communicating with information sources, and preparing the final research report.
- Khoirul Anwar: Participated in proposal and instrument development, coordinated team schedules and Focus Group Discussions (FGDs), communicated with information sources, documented research activities, and contributed to the final report.

- Siti Ekowati Rusdini: Assisted in creating the research proposal and instruments, managed team coordination, communicated with information sources, and contributed to drafting the research article and IPR application.
- Sanita Carolina Sasea: Contributed to the proposal and instrument design, helped coordinate the team and the data collection process, communicated with information sources, and assisted in drafting the research article and IPR application.

Conflicts of Interest. The authors declare no conflict of interest.

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Ethical Approval. This study was conducted in accordance with ethical principles for social science research. The research design, anchored in a naturalistic-interpretive paradigm, prioritized understanding the perspectives and experiences of the community participants. Informed consent was obtained from all individuals and groups involved, including the Women Farmers' Groups (KWT), Tourism Awareness Groups (Pokdarwis), Family Welfare Movement (PKK) cadres, and Integrated Health Post (Posyandu) cadres, prior to their participation in interviews and Focus Group Discussions.

Data Availability Statement. The data that support the findings of this study are available from the corresponding author, Muh. Sholeh (muhsoleh@mail.unnes.ac.id), upon reasonable request.

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