

Food Self-Sufficiency in Limited Spaces: A Survival Strategy for Indonesian Migrant Communities in Malaysia

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ABSTRACT

Food insecurity remains a significant challenge for marginalized populations, particularly migrant communities living in urban environments with limited space and restricted access to formal support systems. This study explores food self-sufficiency in limited spaces as a practical survival strategy among Indonesian migrant communities in Malaysia. The research is based on a community-based educational program designed to introduce simple and low-cost food production techniques suitable for constrained living conditions. The program targeted migrant households, with a particular focus on women engaged in informal economic activities. Educational content included container gardening, vertical planting, and the use of recycled materials for small-scale cultivation. The implementation combined demonstration, participatory discussion, and knowledge exchange to ensure accessibility and relevance. The findings indicate that participants responded positively to the program, recognizing food self-sufficiency as a feasible and beneficial strategy to improve household resilience. Small-space cultivation was perceived as a practical solution to reduce food expenses and enhance access to fresh ingredients. Moreover, the program highlighted the importance of culturally relevant practices and community-based learning approaches in supporting adoption. This study contributes to the understanding of urban agriculture within migrant contexts by emphasizing the intersection of spatial limitation, socio-political constraints, and adaptive resilience. It demonstrates that simple, scalable interventions can play a meaningful role in improving food security among vulnerable populations. Future programs should focus on long-term sustainability, expanded educational content, and stronger institutional support to maximize impact.

Keywords: Food self-sufficiency, Small-space cultivation, Urban agriculture, Indonesian migrant workers, Community-based program

INTRODUCTION

Food insecurity remains a persistent challenge among vulnerable populations, particularly those living in constrained urban environments with limited access to land and resources. Migrant communities are among the most affected, as they often experience restricted access to formal employment, social protection systems, and affordable, nutritious food. In rapidly urbanizing regions across Southeast Asia, the combination of economic pressure and spatial limitation has intensified the need for adaptive strategies to secure household food supply. Small-scale food production, particularly in limited spaces, has been recognized as a viable approach to improve food access, dietary diversity, and resilience among low-income groups (FAO, 2019; Orsini *et al.*, 2013; Zezza & Tasciotti, 2010).

In Malaysia, Indonesian migrant communities represent a distinct socio-economic group navigating partial inclusion within the host country. While many families have achieved a degree of financial stability through informal economic activities—such as home-based food production and small-scale trading—structural barriers remain significant. Migrant families often face limited access to public education, healthcare, and formal welfare systems, which affects long-term social mobility and security. As a result, daily livelihood strategies extend

beyond income generation to include efforts toward self-reliance in essential needs, particularly food. Women, in particular, play a critical role in sustaining household resilience by combining entrepreneurial activities with domestic food provisioning (S.R.Manickam, 2022; E.Syam, 2025).

Within this context, food self-sufficiency in limited spaces emerges as a practical and adaptive survival strategy. Migrant households utilize available micro-spaces—such as balconies, narrow yards, or repurposed containers—to cultivate vegetables, herbs, and other edible plants (R.Mitchell and Bowes, 2016); (N.Harris, Minnis, and Sommerset, 2014). These practices are not only economically beneficial but also culturally significant, as they allow migrants to maintain food traditions from their country of origin. Moreover, small-scale urban cultivation reduces dependency on external food systems that may be unstable or inaccessible for marginalized groups. This reflects a broader pattern of resilience, where communities transform constraints into opportunities through resourcefulness and local knowledge (E. Schwab, Caputo, and Garcia, 2017).

Although urban agriculture has been widely studied, limited attention has been given to its role within migrant communities living under socio-political constraints and spatial limitations. Existing literature often focuses on general urban populations without addressing the intersection of migration status, restricted access to services, and adaptive food practices. Therefore, this study aims to explore food self-sufficiency in limited spaces as a survival strategy among Indonesian migrant communities in Malaysia (J.Crush, 2012). Specifically, it examines how educational and community-based programs can support the development of practical food production skills and enhance household resilience in marginalized settings (D.Dushkova and O.Ivlieva, 2024; G.D. Shrivastava and M. Agrawal, 2025).

LITERATURE REVIEW

Urban agriculture has been widely recognized as an effective approach to enhance food security, particularly in densely populated areas with limited access to agricultural land. It contributes not only to food availability but also to improved dietary diversity and reduced household food expenditure. Studies have shown that even small-scale cultivation—such as container gardening and vertical farming—can significantly support household nutrition in low-income settings. According to the Food and Agriculture Organization, urban agriculture plays a critical role in strengthening local food systems and increasing resilience to economic shocks. Similarly, research by Orsini Francesco et al. (2013) highlights that micro-scale food production in urban environments can provide both nutritional and socio-economic benefits, particularly when adapted to spatial constraints.

Migrant communities often develop adaptive strategies to cope with structural limitations in host countries, including restricted access to public services and formal economic opportunities. Food practices, in particular, become an important domain of resilience, as they intersect with economic survival, cultural identity, and social cohesion. Research indicates that migrants frequently rely on informal networks and localized knowledge to sustain their livelihoods (J. Crush & Frayne, 2011; Battersby, 2017). These adaptive behaviors are not only responses to poverty but also to systemic exclusion, where individuals must navigate uncertain legal and social environments. In this context, food self-provisioning emerges as both a practical necessity and a form of autonomy.

The concept of food production in limited spaces has evolved significantly with the development of low-cost and accessible techniques such as vertical gardening, hydroponics, and the use of recycled containers. These methods are particularly relevant for populations living in dense settlements, including migrant communities. Studies have shown that small-space cultivation can be implemented with minimal resources while still producing meaningful yields (Zezza & Tasciotti, 2010). Moreover, educational interventions and community-based programs have been identified as key factors in enabling the successful adoption of these practices, as they provide knowledge transfer, technical guidance, and social support mechanisms.

Despite the growing body of literature on urban agriculture and food security, there remains a significant gap in understanding how these practices function within migrant communities experiencing both spatial limitations and socio-political constraints. Most existing studies focus on general urban populations without adequately addressing the intersection of migration status, informal livelihoods, and restricted access to public services. Furthermore, limited attention has been given to the role of structured educational programs in facilitating food

self-sufficiency among migrant groups. This study contributes to the literature by examining food self-sufficiency in limited spaces as a practical, community-based intervention tailored to Indonesian migrant communities in Malaysia. It highlights how educational initiatives can empower participants with applicable skills, enhance household resilience, and foster a sense of autonomy in marginalized settings. By integrating social context with practical implementation, this study offers insights into scalable strategies for improving food security among the migrant population.

PROGRAM DESCRIPTION AND METHODS

Program Overview and Context

This program was designed as a community-based educational activity to introduce practical food self-sufficiency strategies for Indonesian migrant communities in Malaysia. The program focused on small-space food production using simple, low-cost, and locally accessible materials. The main idea was to help migrant families recognize that food independence does not always require large agricultural land but can begin on balconies, in narrow yards, in reused containers, and in household spaces. This approach is consistent with the concept of urban and peri-urban agriculture, which has been recognized as a strategy to strengthen food security among urban and vulnerable populations (FAO, 2011; FAO, 2013).

The program involved 25 participants, primarily women from migrant households. Approximately 80% of participants expressed a strong interest in applying small-space cultivation techniques. Around 70% of participants identified food cost reduction as a key expected benefit. The effectiveness of the program was assessed based on participant engagement, feedback responses, and willingness to adopt the techniques.

Target Participants and Program Setting

The target participants were Indonesian migrant workers and their family members living in Malaysia, particularly women involved in home-based food businesses and households with limited access to land. Many participants were assumed to live in rented houses, shared housing, or compact urban settlements where conventional gardening is difficult. Therefore, the program emphasized techniques suitable for constrained spaces, such as container gardening, vertical planting, and the use of recycled household materials. Similar small-scale urban agriculture practices have been reported to contribute to household food access, dietary diversity, and resilience in low-income urban communities.

Data were collected through direct observation, informal discussions, and participant feedback during the program. Field notes were used to capture participant responses, engagement levels, and key insights related to food practices and perceived program relevance. The evaluation focused on participant engagement, perceived usefulness, and intention to adopt the practices. Participants were selected based on accessibility and willingness to participate in the program.



Figure 1. With the wife of a migrant worker in Kuala Lumpur (Personal documentation)

Educational Materials and Content Design

The educational materials were prepared in a simple and practical format to ensure accessibility for participants with diverse educational backgrounds. The content included: introduction to food self-sufficiency, selection of easy-to-grow plants, preparation of simple planting media, container-based cultivation, household composting, basic plant care, and harvesting for daily consumption. Priority was given to edible plants commonly used in Indonesian cooking, such as chili, spring onion, spinach, mustard greens, celery, pandan, lemongrass, and herbs (F. Orsini, 2013).

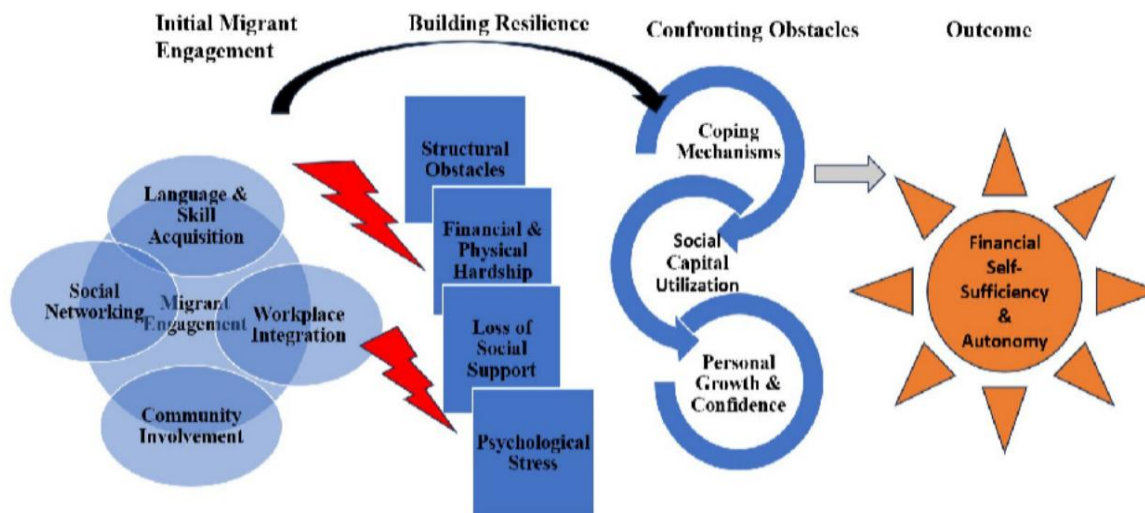


Figure 2. The dynamic process of migrant empowerment: How initial engagement faces structural and psychological obstacles, triggering resilience mechanisms that lead to financial autonomy.

The materials were designed not only to transfer technical knowledge but also to connect food production with household resilience, cultural food identity, and economic savings.

Implementation Strategy

The implementation strategy combined short lectures, demonstrations, participatory discussions, and practical guidance. The session began with a brief explanation of why food self-sufficiency is important for migrant families, followed by demonstrations of how to grow edible plants using limited space. Participants were encouraged to share their experiences, including food-purchasing challenges, cooking habits, and available space in their homes. This participatory approach was used because migrant communities often rely on informal knowledge, social networks, and shared survival strategies to manage everyday vulnerabilities (A. Zezza, 2010). Migration and food security studies have emphasized that food practices are closely connected to livelihood strategies and social adaptation among migrant groups.

Roles and Responsibilities of the Implementation Team

The implementation team consisted of academic facilitators, community coordinators, and local migrant representatives. Academic facilitators were responsible for preparing educational content, explaining the scientific and practical basis of small-space food production, and guiding discussion. Community coordinators helped identify participants, arrange the program setting, and communicate with migrant families. Local migrant representatives played an important role in bridging language, trust, and cultural understanding between the facilitators and participants (J. Crush, 2013). This collaborative structure was important because community-based programs are more likely to be accepted when they are delivered through trusted social networks.

Implementation Of the Activity

Programme Opening and Participant Engagement

The program began with an informal opening session aimed at creating a comfortable and inclusive atmosphere

for participants. Considering that migrant communities often experience social marginalization, the initial engagement emphasized trust-building and mutual respect. Participants were invited to introduce themselves, share their daily routines, and briefly describe their experiences related to food access and household management. This approach helped facilitators understand the socio-economic background of participants while also encouraging active participation from the beginning. Establishing a supportive environment is essential in community-based education, as it fosters openness and enhances learning effectiveness (Freire, 1970).

Delivery of Educational Content

The educational session was delivered using a simple, practical, and visually oriented approach. Facilitators introduced the concept of food self-sufficiency and demonstrated small-space cultivation techniques, including container gardening, vertical planting, and the use of recycled materials such as plastic bottles, buckets, and food containers. The focus was placed on low-cost and easily replicable methods to ensure that participants could implement the techniques independently at home (G.D. Shrivastava and M. Agrawal, 2025). Demonstrations included preparing planting media, selecting suitable crops, watering techniques, and basic plant maintenance. This hands-on approach aligns with adult learning principles, where practical experience enhances knowledge retention and skill development.

Interactive Discussion and Knowledge Exchange

Following the content delivery, an interactive discussion session was conducted to facilitate knowledge exchange between facilitators and participants. Participants were encouraged to ask questions, share their own practices, and discuss challenges they face in maintaining food supply. Many participants contributed insights on cooking habits, ingredient availability, and space limitations in their living environments. This exchange highlighted the importance of integrating local knowledge with introduced techniques. Studies have shown that participatory learning approaches are particularly effective in community-based programs, as they validate participants' experiences and promote collective problem-solving (R.Chambers, 1994).

Communication Strategies and Learning Environment

To ensure effective communication, the program used simple language, culturally relevant examples, and visual aids. Facilitators avoided technical jargon and instead focused on relatable explanations linked to daily life. The learning environment was designed to be informal and interactive, allowing participants to feel comfortable expressing their thoughts and asking questions. In addition, peer-to-peer interaction was encouraged, as participants often learn effectively from others with similar backgrounds and experiences. This approach is consistent with community education models that emphasize accessibility, inclusivity, and contextual relevance (Michaelson and Teel, 2017).

Participant Feedback and Responsiveness

At the end of the session, participants were invited to provide feedback regarding the program content, delivery method, and perceived usefulness. Feedback was collected informally through open discussion, where participants expressed their interest in applying the techniques at home. Many participants highlighted that the program was practical and relevant to their daily needs, particularly in reducing food expenses and improving access to fresh ingredients. Some participants also expressed the need for follow-up sessions or continued guidance to ensure successful implementation. This feedback indicates that the program not only addressed immediate needs but also opened opportunities for sustained engagement and future development. (P. Freire (1970; R.Chambers (1994).

RESULTS AND DISCUSSION

Contextual Relevance for Migrant Populations

The implementation of the program demonstrated that food self-sufficiency in limited spaces is highly relevant to the daily realities of Indonesian migrant communities in Malaysia. Participants showed strong engagement, particularly when the discussion was linked to their lived experiences, such as rising food costs, limited access to

fresh ingredients, and unstable income conditions. The ability to grow essential food items within confined spaces was perceived not only as a practical solution but also as a form of security in uncertain environments. This finding aligns with previous studies indicating that urban agriculture contributes to household resilience by reducing vulnerability to external food supply disruptions (FAO, 2019).

Moreover, the relevance of the program was amplified by the socio-political context in which migrant communities operate. Limited access to formal support systems increased the importance of self-reliance strategies. In this regard, food self-sufficiency functioned as a localized response to structural constraints, enabling participants to regain a degree of control over their daily needs.

Practical Implications

From a practical perspective, the program demonstrated that small-space food production is feasible, low-cost, and adaptable. Participants were able to understand and replicate basic techniques such as container gardening and vertical planting using readily available materials. The use of recycled containers further reduced financial barriers, making the approach accessible even for households with minimal resources (Gwynn-Jones et al, 2017).

Importantly, the program also revealed that the success of such practices depends not only on technical knowledge but also on consistency, motivation, and perceived relevance. Participants expressed a higher willingness to adopt the techniques when they were directly related to daily cooking needs, such as growing chili, herbs, and leafy vegetables commonly used in Indonesian cuisine. This highlights the importance of culturally relevant crop selection in ensuring program effectiveness.

Role of Academic Institutions in Migrant Health Promotion

This study also highlights the potential role of academic institutions in supporting marginalized communities through community-based educational programs. Universities and research institutions can act as knowledge providers, facilitators, and catalysts for practical interventions that address real-world challenges (O'Sullivan, Tuama, and Kenny, 2019). In the context of migrant communities, academic engagement is particularly valuable because it bridges the gap between scientific knowledge and everyday practices (C. Suárez-Orozco and Pimentel, 2009), by translating research into simple, applicable solutions, academic institutions can contribute to improving not only food security but also overall well-being. Similar findings have been reported in community engagement studies, where knowledge transfer and participatory approaches enhance the impact of development programs (Robert Chambers, 1994).

Potential for Programme Replication and Scaling

One of the key findings of this study is the strong potential for replication and scaling. The program design, which relies on low-cost materials, simple techniques, and community participation, can be easily adapted to other migrant settings or urban low-income communities.

The scalability of the program is further supported by its flexibility. It does not require specialized equipment or large infrastructure, making it suitable for informal settlements and diverse living conditions. Additionally, the involvement of community representatives in program delivery increases the likelihood of sustainability, as knowledge can continue to circulate within the community even after the formal program ends.

This suggests that similar programs could be implemented in other regions with migrant populations facing comparable challenges, contributing to broader efforts in improving food security and resilience (D. Béné, Headey, Haddad, and Grebmer, 2016).

Limitations of the Program

Despite its positive outcomes, this program has several limitations. First, the implementation was conducted within a limited time frame, which restricts the ability to evaluate long-term adoption and sustainability of the practices. Second, the assessment relied primarily on qualitative observations and participant feedback, without quantitative measurement of food production output or economic impact.

Additionally, variations in participants' living conditions, time availability, and motivation may influence the effectiveness of implementation at the household level. These factors highlight the need for follow-up programs and more comprehensive evaluation methods in future studies.

CONCLUSION

This study demonstrates that food self-sufficiency in limited spaces serves as a practical and adaptive survival strategy for Indonesian migrant communities in Malaysia. Under conditions of spatial constraint and limited access to formal support systems, migrant households are able to utilize small and often overlooked spaces to produce essential food items. The program highlights that simple, low-cost cultivation techniques—when combined with accessible educational approaches—can empower participants to improve their household food security and reduce dependency on external systems.

Furthermore, the findings emphasize that food self-sufficiency is not solely a technical activity but also a socially and culturally embedded practice. It supports not only economic resilience but also a sense of autonomy and continuity of food traditions among migrant families. The strong engagement observed during the program indicates that community-based, participatory approaches are effective in delivering knowledge and fostering practical adoption.

Overall, this study contributes to the growing discourse on urban agriculture and migrant resilience by demonstrating that small-scale, space-efficient food production can play a meaningful role in addressing food insecurity among marginalized populations.

Recommendations For Future Programmes

Based on the findings of this study, several recommendations can be proposed for future program development and implementation:

1. Long-term Monitoring and Evaluation

Future programs should incorporate longitudinal assessment to evaluate the sustainability and long-term impact of food self-sufficiency practices at the household level.

2. Integration with Community Networks

Strengthening collaboration with migrant community groups and informal networks can enhance program reach, trust, and continuity beyond the initial intervention.

3. Expansion of Educational Content

Additional topics such as simple composting, water-efficient irrigation, and small-scale food preservation techniques could further improve the effectiveness of the program.

4. Policy and Institutional Support

Greater involvement from academic institutions, non-governmental organizations, and policy stakeholders is needed to support migrant communities in accessing knowledge, resources, and inclusive development programs.

5. Adaptation to Diverse Contexts

The program model should be adapted to different living conditions, cultural backgrounds, and environmental settings to ensure broader applicability and scalability.

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