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The Analysis of Urban Farming Potential in Port Dickson for Food Security amid COVID-19 Pandemic

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Abstract

COVID-19 pandemic and Movement Control Order (MCO) have resulted in a higher percentage of retrenchment, unpaid leave, or reduced wages, especially for the personnel in tourism and hospitality sectors under the B40 and M40 groups. With reduced household income, more families fell into a hard time and faced difficulties obtaining fresh goods such as vegetables with the amount of money left in hand. The study targeted to locate the potential locations in Port Dickson to be developed into urban farming and followed by the best approach of urban farming analyzed according to different site characters. A case study approach was adopted with two techniques, namely mapping analysis for Port Dickson's potential green spaces and interviews with urban farming experts to validate the findings. The findings recognized multiple approaches of urban farming subjected to different site characters and contextual forms. The study provides recommendations on strategies to accomplish a resilient food system embedding sustainability to correspond with Sustainable Development Goals (SDG) 2030, efficient land management for urban farms, empowering knowledge, and entrepreneurship of urban farming food production for individuals and communities.

Keywords

Urban farming, Food security amid pandemic, Resilient food system

Introduction

The COVID-19 pandemic has resulted in a massive loss of human life worldwide, posing an unprecedented challenge to public health, food systems, and the workplace. Millions of people are at risk of falling into extreme poverty, and over half of the world's 3.3 billion workforces are at risk of losing their jobs. In addition, many people cannot feed themselves and their families during lockdowns because they lack the means to earn a living. Committee on World Food Security (2020) mentioned that without a source of income, most people will have no food or, at most, less food and less healthy food.

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This situation is no exception for Malaysia too. Malaysia's economy has been severely hit by the COVID-19 pandemic, as evidenced by the increase in the unemployment rate in the current job market situation. This finding is concurrent with the Department of Statistics Malaysia (DOSM) statistics whereby the country witnessed 826,100 unemployed people in May 2020, an all-time high monthly unemployment rate of 5.3% (Department of Statistics Malaysia, 2020).

A study by Vanzetti & Ralf (2021) supported the findings saying one of the most affected industries by the COVID-19 outbreak is tourism, with the drop in visitor arrivals in developing countries is ranging between 60 and 80%, with South-East Asia became of the most affected region and Malaysia stands at 79%. Along with its counterparts worldwide, the government took efforts to prevent the spread by shutting borders, resulting in significant employment and economic losses, bringing the whole tourism industry to a halt. As funding dried up, many hotels closed, and other travel agencies and businesses folded. The Chief Executive Officer (CEO) of Malaysian Association of Hotels (MAH), Yap Lip Seng, highlighted that by the end of 2020, between 10 – 20% of the industry's workforce would have been forced unemployed, with the hardest-hit states being Kedah, Perak, Negeri Sembilan, Melaka, Sabah, Kuala Lumpur, and Selangor (Ganesan, 2021).

Nestled in the south of Negeri Sembilan, Port Dickson is one of the favorite holiday destinations for visitors. The reimposition of Movement Control Order (MCO) from the early stage of the pandemic until the second quarter (Q2) of 2021 has had a significant impact on the tourism sector, particularly the hospitality industry in Port Dickson. Since the pandemic's initial wave, the hotel occupancy rate in Port Dickson has seen a significant drop until 15% due to the locked-down meant to curb the pandemic (The Sun Daily, 2020). According to Ganesan (2020), hotels do not anticipate making a profit below a 50% occupancy rate, or else the Malaysian hotel industry will see roughly 30% of its players shut down their operations, either permanently or temporarily, if the COVID-19 pandemic scenario continues to deteriorate. To date, the hospitality industry has lost around RM11.3 billion in revenue due to prolonged movement restrictions, putting the livelihoods of 3.6 million people in jeopardy (The Star, 2021). A recent study by Khan & Hashim (2020) mentioned that hotel employees were forced to take unpaid leave, forced to take wage cutbacks, and permanently retrenched following MCO. These unprecedented circumstances have led the household income to be reduced considerably, especially for those impacted, such as the B40 and M40 group (Lim, 2020). Consequently, more families fell into poverty and faced difficulties obtaining perishable and fresh goods such as vegetables (Abdul Khalid et al., 2020) and the issue of food security arose as it has been highlighted as crucial in Sustainable Development Goals (SDG) 2030.

Hence, to withstand the COVID-19 pandemic, urban farming can become a means to help households reduce their cost of living and help those who have lost their job by producing their food within their vicinity. By doing so, these impacted households will have food security as they have supplies for fresh fruit and vegetables and can help them generate income. Under Budget 2021, as has been tabled by the Finance Minister, Malaysia will implement a stimulus package to empower the agriculture sector amid the COVID-19 pandemic. Among the initiatives for agriculture sectors are the Community Farming Program expansion to the semi-urban and rural communities with a cut of RM30 million with guidance from the Agriculture Department. This

initiative has shown tremendous effort made by the Malaysian government to deal with food security and self-reliance issues caused by the pandemic.

Methodology

This study adopted a qualitative method to the research design by using a case study approach with two (2) techniques, namely mapping analysis and semi-structured interview. Mapping analysis is expected to find potential green space in Port Dickson for the development of urban farming. The mapping analysis is carried out to analyze any green spaces in Port Dickson with different site characters, and the site selection is based on the list of green areas permitted to execute urban farming as highlighted in *Dasar Kebun Komuniti Bandar* (DKKB) by the Ministry of Housing and Local Government (KPKT). Following that, semi-structured interviews are conducted with three (3) urban farming experts in Malaysia with experience in managing the urban farming policy and the implementation of urban farming itself. Hence, the interviews are intended to get insights from the experts and validate potential sites' findings.

By using Google Earth and Google Street View followed by the screening of potential green spaces as highlighted in *Dasar Kebun Komuniti Bandar* (DKKB), two (2) areas in Port Dickson have been selected, which are Taman Bukit Samudra and Taman Sunggala Hartamas. The two (2) chosen areas have green spaces with different site character that is best to be compared for the potential of urban farming development. On a side note, most of the green spaces available in Port Dickson fell onto the same Category 1 – Residential Area, and only a few fell under Category 3 – infrastructure/ utility reserve areas. Among the aspects to be analyzed are site location, type of residential property, land-use of site context, the current function of the green space, number of houses in the residential area, topography, strength of the green space, weaknesses or limitations of the green space and proposed urban farming approaches suitable for the green space.

Figure 1. The location plan of the two (2) residential areas for sampling (Adapted from Google Earth, 2021)

Results and Discussion

The data analysis from the mapping analysis technique for two (2) residential areas was compared and shown in Table 1 below.

Table 1. Comparison of two (2) potential green spaces for urban farming

No.	Aspects	Site 1: Taman Bukit Samudra (2°32'36.3"N 101°48'09.3"E)	Site 2: Taman Sunggala Hartamas (2°29'58.0"N 101°51'50.7"E)
1	Name of sub-district	Port Dickson	Si-Rusa
2	Type of residential property	Low-cost terrace, double-story house	Low-cost terrace, double story house, and semi-D
3	Number of houses	39 houses	630 houses
4	Land-use of site context	i. In proximity to overhead powerlines (infrastructure) ii. Surrounded by several residential and commercial areas iii. Adjacent to the main road	i. Adjacent to roadside ii. Close to a community hall iii. Surrounded by houses iv. It has a small river across the site
5	The existing function of green space	Some area serves as greenery while some areas were left vacant	None; vacant
6	The total area of green space	3.1 acres	1.2 acres
7	Topography	Flat elevation	Flat elevation
8	Strength	i. Location is adjacent to the residential areas (within local community walking distance)	i. Located within a residential area and within walking distance from the community houses. ii. Wide-open space
8	Weaknesses/limitations	Very close to the powerline whereby precaution step needs to be taken and adhere for safety reasons	Smaller space as compared to Site 1.
10	Proposed urban farming approaches	i. Raised planting beds ii. Pots iii. Aquaponic iv. Hydroponic	i. Raised planting beds ii. Pots iii. Aquaponic iv. Hydroponic v. Vertical farming

On the other side, the data analysis from interview sessions with the urban farming experts was analyzed in detail using content analysis. All experts agree that urban farming practise is rising as the pandemic makes people rethink how they source their food. Regardless of the imposition of MCO, which limits people's movement in Malaysia, there is no hindrance for urban farming as

one can still follow the Standard Operating Procedure (SOP) by rotating the work required or executing urban farming on a smaller scale within their house compound. Though there were minimal food shortages amid the pandemic in Malaysia, experts did agree that the practice of urban farming helps local food production, hence overcoming the issue of importing food from neighboring countries. Also, food supply for everyone practically can be achieved regardless of the size of space available, constantly available whenever needed and preferably been done sustainably to ensure much safer and fresh vegetables produced.

Experts highlighted the process of selecting potential green area for urban farming development relies not on the local authority, instead the local community chose the green spaces themselves and applied legally to the local authority. Experts have suggested a few measures in selecting the potential green area for urban farming that is by applying the concept of SAPMORE; Site Analysis, Planning, Monitoring and Review. Site Analysis involves observing the site suitability, either it can potentially disrupt the planting plots, site topography and the sun orientation as it is crucial to arrange the raised bed layout to face the morning sun for the photosynthesis process. Planning means suggesting the type of vegetables suitable to be planted and the best urban farming approaches according to the site condition and the sustainability concept. The local community may seek the aid of the local authority or the Department of Agriculture (DOA) for the best advice on this matter. Lastly, Monitoring and Review are to check the progress and quality of the said urban farms and give recommendations when needed.

All experts differ between the selection of urban farming approaches either conventional or modern farming technology in any potential green area. However, the best urban farming approaches for any potential green area is yet to be determined as they are subjected to the site suitability and the needs of local communities to benefiting them in the most possible ways. The needs of local communities depend largely on their household income as they will have different target to achieve. For Taman Bukit Samudra which is in the utility reserve area (electrical powerline), it is subjected to the permission of Tenaga Nasional Berhad (TNB). Hence, the green area has limitations of height clearance considering the site is located below the electrical powerline. Experts proposed hydroponic, aquaponic, raised planter beds, fertigation, pots as the urban farming approaches suitable for this green area. Permaculture approach can be done but requires suitable placement for the plants. Meanwhile for Taman Sunggala Hartamas green area, most of the urban farming approaches can be done such as raised planter beds, pots, vertical farming, hydroponic, aquaponic, fertigation, permaculture and shipping container farms. The green area is a potential area for urban farming as water source is available from the river next to the green area besides it has a flat topography and is not located under any reserve area.

Conclusion

Urban farming had surged tremendously during the pandemic for its multiple benefits but to come into consensus on the best approaches of urban farming for each potential site will differ from one another and must consider the site suitability and local community's need. In all, these approaches are anticipated to generate more resilient food systems that help boost the local vegetable production, offering food security to the community while assisting in generating incomes, especially for people affected by the pandemic, particularly the B40 and M40 group.

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