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Effectiveness of Urban Farming Program in Providing Multiple Benefits to the Urban Community in Malaysia

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ABSTRACT

Residents have chosen to be living in urban regions in recent years largely due to the accessibility of job opportunities and public services. These led to a fast increase in the amount of people live in urban regions and cities. As a result, a large amount of the property used for agricultural activities was transformed into factories, housing units, and highways. This also resulted in a decrease in food production, growth in food prices and food import bills as the country now relies on food imports especially rice, fruits and vegetables, that can prevent the fostering of urban farming activities and then provide beneficial information essential to form it into a more consumer friendly program. Moreover, studies on urban farming are somewhat few in Malaysia and this study can become helpful for future research. The study focused on small-scale agriculture projects, such as community gardens, and community-level programs such as community supported agriculture and farmers markets. The study found that how urban agriculture enhances community resilience and wellbeing. This is the necessity for the Malaysian urban authorities to provide more proper identification and support to city residents and promote them to develop the practice of urban farming.

1. Introduction

Urban agriculture is a creative solution for improving access to healthy foods, revitalizing communities' economies, and social health, especially in developing cities^[1]. Such practices of urban farming take place in different parts of the cities, such as the backyards, rooftops, and others. Urban agriculture is increasingly growing in Malaysia. Urban agriculture plays a significant role, in improving nutrition and safety, urban food security, generating job opportunities and contributing to increase the recycling of nutrients and community development^[2].

Urban agriculture contributes to addressing urban issues such as environmental issues and is being widely adopted and used as an instrument for sustainable urban growth around the world. Urban agriculture is not a new phenomenon, it just transforms the face of agriculture into a different style in urban condition as one of the latest techniques to challenge the traditional farming method. Complex structure of urban farming can be described in many ways and needs to be adapted to the local context^[3]. Urban agriculture is described as the expanding, processing, and supply of food and other products via intensive plant farming and animal farming in and across towns^[4].

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In addition, urban agriculture also involves agricultural production activities as well as associated processing and distribution by specialized microenterprises or NGOs of inputs and service supply. Therefore, the long-term activity of urban agriculture supports the urban dwellers, local authorities, and the general community. Urban agriculture, according to Pearson [5], is not a single entity. It includes residual, mostly peri-urban, large acre farmland, small community gardens, self-managed allotments, home gardens, and parts of parks that had previously been entirely planted with facilities, fruit tree along roadside reserves, greenhouse, green roofs and green walls. Beside crops, urban agriculture also includes the cultivation of livestock within cities. It can be anything from small vegetable gardens in the backyard to an organization or neighbourhood group's activities like livestock on community lands, in which the production typically geared to household consumption (FAO, 2010). Food grown at the city or town's daily pace, developed directly for the marketplace, and mainly processed and sold by the farmers or their near associates [6]. Urban farming is a wide and expanding sector using wastewater and solids waste as input that closes ecological loops when extracted on idle land and water bodies [6]. Urban and peri-urban agriculture provide food products from different crop types and urban livestock farming.

1.1 Definition of Urban Agriculture

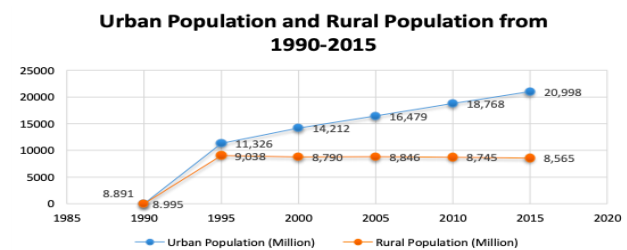
Urban agriculture consists of a variety of things to do worried with elevating vegetation or raising animals. Private gardens in backyards, neighbourhood gardens and city farms are some of the greater typically referenced developing activities. Chickens, bees, fish, and farm animals are also involved. Other activities that are incidental to these encompass composting animal waste or vegetative and putting in constructions such as hoop and greenhouses homes to prolong the growing season of plant life. Retail and marketing and attempt like farmers markets, food vehicles and produce stands are also captured in this classification [7]. Beyond the manufacture of foods is the variety of benefits attributed to urban agriculture. Urban farming is a comprehensive system covering a range of interests, from a usual core of activities linked with the production, advertising distribution, processing, and consumption, to a variety of different benefits and services that are much less generally known and documented. These involve leisure, endeavour and, financial vitality and well-being; neighbourhood health and well-being, environmental restoration and landscape beautification and remediation [8]. These social advantages are regularly recognized to urban farming regardless of the true affects the use might have.

Several advocates and practitioners of urban farming cite these advantages as inherent to the usage. Urban farming advocates frequently champion farms and gardens to “bring back” nature into towns [9].

1.2 Urbanization in Malaysia and the Rise of Urban Agriculture

About 30 per cent of the world's population is supposed to stay in urban regions in 2025 (Department of Statistical Malaysia, 2015). This pattern is expected to continue with the country witnessing population growth and rapid urbanization. This situation would arise because of the increasing migration of rural people to the city due to the improved economic conditions in urban areas. Rural-urban migration would make urban areas more heavily populated, which resulted in competing for access to food sources, education, accommodation, and food security.

Table.1 Urban and Rural Population in Malaysia (1990-2015).



Sources: Department of Statistic Malaysia, 2016

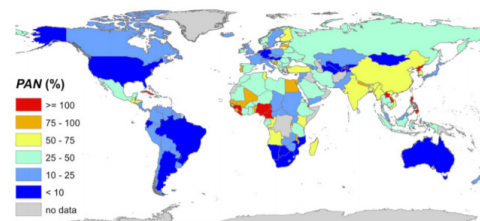


Figure 1. PANa (Urban Area Needed Percentage) to meet the actual consumption of vegetables by urban residents in UA

Source: [10]

The community garden is not new to Malaysia, as the “Bumi Hijau” program has existed since 2008, Putrajaya Corporation launched “Kebun Komuniti Programme”, a community gardens project involving the citizens of Putrajaya. The initiative has positive outcomes and enhances interaction through community engagement. The community garden used traditional beds and irrigation for farming at the beginning of the program. Two greenhouses built at the Community Garden by the end of 2013, an initiative to enhance Community Garden in Putrajaya in

collaboration with MARDI (Putrajaya Corporation, 2014).

1.3 Implications of Urban Agriculture and Well Being

Public and educational lands dedicated to food production promote contribution in the vigour of a positive urban environment. Working collaboratively to “green” a neighbourhood creates secure and enjoyable neighbourhoods that reduce air pollution, decrease crime, and improve public life [11]. Social meeting is positively linked with individual attention to wellness and health care. Urban neighbourhood farms and gardens improve the health of the environment as well as that of social dwellers. Farming enhances air quality and rises biodiversity [12]. Rooted shrubs stabilize the ground and decrease soil ablation. Working with plants and being in the outside cause disease prevention and recovery responses. Health specialists use gardening and plants resources to help patients of diverse ages with mental illness enhance social abilities, self-esteem, and use of relaxation time. Gardening therapy promotes plant-human relations to encourage relaxation and to decrease stress, blood pressure, fear and anger, and muscle tension [13].

1.3.1 Personal Norms

According to Ajzen [14] the subjective norm shows perceived social stress to do or not accomplish the behaviour. Subjective norms that is relevant to be related with urban agriculture activities are like family, friends, neighbour, and government. Studies from Weiss [15] identified elements such as perceptions of friends or family or about urban agriculture activities, campaign from school or university and neighbourhood characteristics are influencing youth to participate in urban agriculture activities in their vicinity. Another studies from Herren et al [16] found that students in one school at Texas, believed that the agriculture teacher had an impact on their decision to participate and register in agricultural activities.

1.3.2 Identified Behavioural Control

The perceived behavioural control is the extent to which the person understands the behaviour to be under control. It shows whether people simply join or vice versa. According to Vermeir and Verbeke, [17] people will not have intention to perform the behaviour when they feel they are lacking the opportunities or resources to accomplish a behaviour. In this case, people might have intention to perform urban agricultural activities if they have time, knowledge, and suitable equipment for such activity. Besides, Sparks et al, [18] have indicated that perceived be-

havioural control shows both external perceived problem aspects such as perceived obstacles and inner control factors such as self-efficacy.

2. Urban Farming Program

The impact of the urban farming system can be seen by various elements such as availability and quality of food, cost-effective food supply and revenue production through sales [19].

Table 2. Urban farming systems

Farming system description	Expected products	Place location / technique
Aquaculture	Vegetables, fish, seafood, and fodder	Ponds, cages, streams, lagoons and wetlands
Horticulture	Fruits, vegetables, and compost	Homesteads, wetlands, parks, containers, rooftops, hydroponics, and greenhouses
Livestock farming	Milk, eggs, meat, hides and manure	Hillsides, zero grazing, peri-urban areas
Agro-forestry	Fruits, wood fuel, building posts and fodder	Street trees, homesteads, forest parks, steep slopes wetlands and orchards.
Other systems	Household plants, flowers, and medicinal herbs.	Ornamental horticulture, roof tops and container farming

Source: [20]

3. Profitability of Urban Farming

Urban agriculture has been shown to offer many environmental benefits that assist local people support local environmentalism. Furthermore, the social, cultural and health effects of urban farming are generally positive and has benefits to a variety of community organizations and groups. An urban farmer requires an effective infrastructure, a competitive marketplace and a group engaged community, careful crop selection, and many other factors to reach success.

4. Economic Impacts

Urban farming can build economic progress within the communities. Urban green infrastructure will boost real estate values within their areas [21]. Enhanced green infrastructure by urban farms and gardens will help decrease urban vandalism [21]. Such improvements to the neighbourhood lead to a more active market for real estate in the region. Nevertheless, by establishing food production within urban regions, farmers can deliver fresh, healthy food at relatively low costs [22]. The direct relations between customer and producer make these low costs and comparatively easy but profitable paradigms possible [23].

Since urban farms are established within the neighbourhoods they manage, these businesses can attach directly with the users of their supplies and cut certain costs associated with the distribution and sale of items. The direct link makes commodities produced by urban agriculture not only to be competitive but also reasonable to the customer [22]. Regional food production also creates competition with traditional rural agriculture and mark down overall food costs in the area, making healthy economic competition [24].

5. Methodology

The study reviewed linked lectures which had been peer-reviewed and sought the answer to how urban farming be able to solve the profitability, food security, and wellbeing issues in the urban region? The corpus was taken from Science Direct, Scopus, Web of Science, Google Scholar and ProQuest. These databases given access to the publications that were needed. The following key terms were explored for Urban Farming, wellbeing, farming in urban regions profitability, and food security. The abstracts, keywords and titles were searched for the key terms. The year was set from 2015 to 2020 from various resource categories such as thesis, journals, books, conference papers and reports. After That, the documents were checked to make sure for the applicability and determine the final outcomes. Additional sources were announced in the reference list of each paper. Hence, the sample collection was followed in this stage. The papers found were reviewed, contrasted, and compared. The process of study is shown in Figure 2.

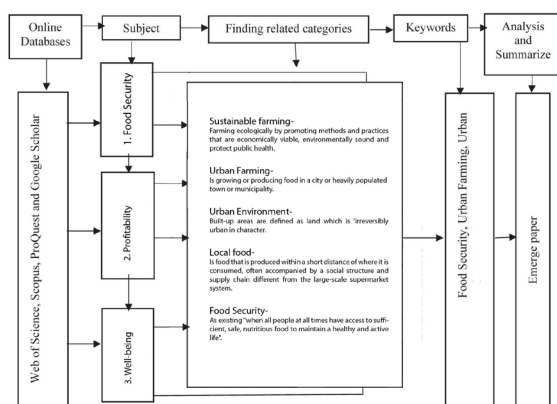


Figure 2. Research process

6. Discussion and Conclusion

Considering the ever-rising urbanization and increase of residents, designers and planner's universal have started

to view towns as places for food production to meet public and ecological demands. Town zones requires the most serious efforts but at the same point have the advantage of merging local food making facilities in planning. It is mostly because of the high focus of customers and huge amounts of the sparse residents with limited gain access to farm areas and fresh food. The limitation of nature resources led to the execution of accuracy cultivation. In this system, just the needs of the farm are supplied. Therefore, it can reduce on wastewater, nutrients, natural light, energy, and the damage of products is stayed to a bare lowest too. There are other essential features of urban agriculture than just regional products. How it gets its path in the economic and social. In urban agriculture, urban supplies are employed with the workforces, organic waste material, land, and water. So, each the input it requires is urban and is observed by city laws and policies, conditions, the goal market, and land competition. It is affected by other factors as the cost, decreased life conditions, impacts of food security, health issues and the ecological conditions [25]. Urban agriculture can deal with the unstable production of food in towns that is still expanding alongside with the transformation of residential high population or poverty in developing regions. Finally, the structure that have been proposed could boost the overall value of the town landscape and inspire rules modified to the weather change. Farming performs an important position in the cities. It affects many of lands of jungles to be ploughed which would set a stop to many lands. It seems that the idea of an urban farm in the town regions could solve many actual problems linked to production of food and degradation of environmental [26]. Urban farming is a valid indicator of cities ecosystem. It implements an integrating approach. It does not transform environment to suited in with social demands. It can utilize several areas by getting them appropriate for cultivation. Urban farming is a transforming point of the millennium in urban planning but not bounded to that [27]. In faraway towns that are extremely dense, aids to increase production and reduce effect of farming. The main feature of urban farming is close connection to the ecological, economic, social, and state of towns. The notion necessitates the creation of a diversity of plants in inhabited areas, that hold the world-wide residents far away from the country. Since the goods are traded in the local marketplace in the same location they are cultivated, there is minimal need for transportation that is engaged in the traditional methods of agriculture. Therefore, no crop would damage by climate happening like hurricanes, floods, droughts etc. Thus, what urban farming delivers for a town ecosystem helps citizens to live there for a secure and healthful ecosystem, safe drinking water, safe use

of public water waste, cleaner air, new occupation opportunities, and fewer empty lots and construction. Not only make urban farms play as hospitals for food stuff but they similarly act environmentally to the town which deeply needs innovations in structures such as the management of hydrological facilities and waste, water management method.

7. Conclusions

The concept of urban farming is not new, however more research is required in the field of “going green architecture” as these phenomena is of global importance in the existing trends of climate change and inevitable development. There are several laboratories which are doing research on urban farming, but in the case of research is needed to gain public help for the landscape. Urban farming could be energy efficient and cost-effective and way to help and solve some of human health issues and urban environmental and food product with no concern of dead end. World is facing environmental problems, but the technologies of green landscapes are brand new for whole world equally. The bigger industrial towns should be the trend-setters in approval of urban farming construction. The developing countries have more capacity to adopt it as they are suffering from the effects of food shortage and global warming at higher ratio. To evaluate the logic and form of government support for urban farming in Malaysia, the following strategic framework should be followed: Creating national action plans and policies to have an integrated change of landscapes. Projects should be announced and should be awarded on competition basis to boost the public awareness and involvement. Removal of current barriers in constructing and zoning codes. A sustainable method to develop urban farming technology can possibly address multiple human health problem and environmental problems in cities including the urban heat island effect, global climate change, and food security and storm water runoff.

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