

## The Analysis of Urban Agriculture Development in Malaysia

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Rabiul Islam and Chamhuri Siwar: The Analysis of Urban Agriculture Development in Malaysia

### ABSTRACT

Urbanization and the globalization of the food system are causing social, environmental, economic and political problems worldwide. Malaysian urban agriculture is one tool for sustainable development that has the potential to provide food or related services within or on the edges of urban areas. Urban population depends largely on cash income to access food and with unemployment increasing more urban households is unable to access food to meet their needs. Alternative ways of accessing food has become necessary. The goal of this research was to determine the current situation and the future potential of urban agriculture. A literature review was used to determine the perceptions of relevant stakeholders, barriers and ways to overcome those barriers. Study participants demonstrated a relatively greater awareness of environmental and community benefits of urban agriculture compared to food security, health or economic benefits. This study has investigated the impact of such farming on household's food security and income generation. This result in lack of adequate land use planning for urban agriculture and weak support to urban farmers. Malaysian urban agriculture is therefore constrained by lack of integrated development approach. Major challenges identified were perceptions of limited space, limited resources and education. Recommendations to address these challenges are also provided. Overall, the urban agriculture of Malaysia has potential to contribute to sustainability.

**Key words:** Urban agriculture, Economic development, Food security, International policy.

### Introduction

Urbanization and the globalization of the food system are causing numerous social, environmental, economic and political problems worldwide [20], which run contrary to the desperate need for sustainability. Though the definition of sustainability is often contested there lies at its heart a fundamental, core set of values regarding 'parallel care and respect for the ecosystem and for the people within' [35]. By 2025 however, 60-85% of human beings will be living in urban areas [34]. This will lead to greater resource pressures from increased competition, environmental degradation from pollution and urban food insecurity [2]. These pressures are making it increasingly difficult to sustain our environmental and social relationships over time. The food we eat travels ever-increasing distances to reach the urban citizen with ramifications on how we relate to food and the environment [15,11]. Urbanization is linked to increasing greenhouse gas emissions from increased energy expenditures in rapidly expanding cities [7]. There is the growing possibility of future food shocks due to the volatile nature of the global food system and massive food imports of growing

populations like China [36,3].

Some degree of re-localization is needed to rein in increasing "food-miles", protect against possible global food insecurity [27] and to mitigate or perhaps reverse the various impacts of urbanization. This is not only integral to the developing world but also the developed [24]. One method of adapting to this situation would be to expand upon urban agricultural (UA) practices as a tool to achieve food security, food sovereignty, sustainable urbanization and re-localization [25]. Urban agriculture (UA) can be defined as an activity that produces processes, and markets food, fuel, and other outputs.

This is largely in response to the daily demand of citizens within an urban area. UA can occur on many types of private or public land or water bodies both within and on the edges of cities, taking on many forms depending on the local context to yield an array of land-, water- and air-based biodiversity, contributing to the food security, health, livelihood and habitat of all living beings and systems. It can be a transient or permanent feature in both developed and developing nations. Over 800 million urban residents worldwide are involved in UA for pleasure, commercial gain or survival and it has a significant impact on food security. It is a resurgent

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international movement that has been growing among the poorest sectors of urban societies due to an increasing wealth disparity in many nations and the breakdown of rural communities [32]. UA alone cannot solve the problems of our current food system though it can greatly complement other strategies that address socio-economic and environmental problems that the present food system creates. Food security exists when all people, at all times, have physical and economic access to sufficient, safe, culturally acceptable, and nutritious food to meet their dietary needs and food preferences for an active and healthy life through local non-emergency sources.

Urban agriculture is an informal set of activities focusing on farm production in the urban environment. It generally differs from high technological application sophisticated farming ventures in the urban environment. UA is rather a potential socio-economic survival and livelihood enhancing strategy for those operating at the economic margin [30]. Mlozi [19], regards UA as people's initiative to cope with economic crisis. UA could play an important role in generating income for households. Potentially, UA could play an important role in the provision of food, employment and market for other sectors of the economy. UA recycles goods and makes use of idle resources [30]. Traditionally, UA was practiced mainly by citizens of lower socio-economic status.

The literature indicates that UA generally experiences constrained access to production resources and support services. Poor access to basic production factors has contributed to poor performance of UA and these damages the image of the sector as it creates the impression that agriculture in urban environments does not perform adequately. Poor access to resources is largely because policies do not sufficiently accommodate the sector within urban planning.

#### *Urban Agriculture:*

#### *Urban agriculture defined:*

Urban Agriculture is not a recent phenomenon nor is it localized [45]. Throughout most of mankind history and different civilizations, urban populations have to variable extents engaged in producing some of their food close to their own residence within or outside the city [30]. Food production in urban settlements of ancient civilization has always been part and parcel of the urban economy. UA can be defined in a number of ways. Among others, Sawio [30], defines UA as a socio-economic activity that involves crop growing and livestock keeping in intra-urban open spaces and peri-urban areas. For purposes of this study, UA is defined as the practice of agricultural activities within urban and peri-urban periphery.

This concept is used to restrict the focus of the study to small scale farming in the urban environments as practiced by the historically disadvantaged groups. This chapter develops a conceptual view of urban agriculture using experiences of other countries practicing the activity.

Although UA was mainly informal, practitioners did apply modern technologies if and when they had required resources. Recent technological breakthrough for UA includes water collection, localized storage and distribution, frost protection, wetlands drainage and slope terracing [21]. The spread of poverty and unemployment encouraged the informal sector of the economy to tend to food production as an alternative to money for poor urban dwellers to survive and eke out an existence. It is a common practice to attend to basic immediate needs such as food under crisis situation. The capacity of UA to produce under unfavourable conditions (limited access to resources) is often sustained by the efficient production processes which utilizes the optimum combination of family labour, minimum capital and the most appropriate form of locally learned technology [28].

UA is spatially mobile and its scale of operation changes as environmental, technical, socio-cultural and economic forces interact and produce changes [29]. The morbidity is largely the result of the sector being officially marginalized in urban land allocations and planning processes [40]. UA is becoming important in the informal sector in most developing countries. UA grew with the informal settlements and is now being accepted as an urban land use activity. This view has been gaining momentum since the 1970s throughout the world. During the 90s, UA practitioners were estimated to be about 800 million [30].

UA is a means of stabilizing household food security and prevents massive malnutrition. A variety of nutritious foods, which would be beyond the means of poor households to obtain through the market, can be provided through UA [17]. UA can also emerge as a response to the nearby market and derives value from its links with urban industries. Structural changes such as poor production of rural farming systems, imbalance trading systems between rural and urban situations and food price inflation could also support UA expansion. Urbanization affects the food demand structure because it affects the type of food and the level of demand. Difference in consumption patterns between rural and urban households including households recently located to urban settings, provides opportunities for commercial growing of food not typically grown in rural areas. Urbanization therefore calls forth more intricate promotion of food production from within as well as from rural areas.

*Prospects for Urban Agriculture:**Practitioners of Urban Agriculture:*

The typology of persons or groups involved in UA is important for strategy development. UA is generally practiced predominantly by those in the low-income bracket. This is also true for South Africa where poor households dominate the sector. This partly explains why the sector lacks support and recognition.

*Agricultural or Farm Producers:*

Agricultural producers include practitioners that are more or less full time (farm) producers and those that may have irregular and sporadic non-farming employment. Farming however remains the main economic function. Farming by the poorer individuals or groups is generally practiced in a garden context. Two major types of producers identified include; producers who are farming on their own and sometimes on the land they do not own nor have permission to use. Generally, this type does not have access to formal support services. The other type is that of producers in organized projects initiated or managed with the assistance of an institution such as a development agency, Non Government Organization, government etc. these producers are usually organized and have access to formal support.

*Other Income Earning Types:*

Although the poor and marginalised are dominant in UA, studies [4], show that UA is not exclusively for the poor. Various income groups are engaged in UA. According to Chaipa and King [4], food gardening in Harare (Zimbabwe) is predominantly practiced by house owners with regular other income sources and who are in most cases better off and have better access to resources. In reality urban farmers are from different social strata and the composition varies from place to place. The impact of UA also differs with the social strata as they practice UA for different purposes. i.e. income, hobby, own consumption etc.

*Gender Aspects and Urban Agriculture:*

Studies show that women dominate urban farming activities. In Kenya, women constituted 56% of the urban farmers while in Dares Salaam the figure was 65% [21]. A similar situation has been found in South Africa [13]. For this reason, the promotion of UA could be regarded as a “gender focus” strategy to assist women to protect or supplement their other sources of cash income. This also assists women to assert some control over the source of food which is not dependent on either

urban food market or income [16]. Women are therefore the main beneficiaries of UA and therefore, UA contributes to the reduction of gender inequalities and improvement in wealth distribution. One of the reasons mentioned for women to dominate the UA sector is that farming meshes well with women’s other household activities such as cooking and childcare.

*Economic Features of Urban Agriculture:**Access to Land:*

In addition to other factors, the ability to access land is an important factor in determining who farms in urban environments. Often those who have been in the area for longer periods are more likely to be involved in farming because they are most likely to access land as they know procedures (formal and informal) and have networks. However there are also indications that new migrants from rural areas are the ones most likely to practice farming as the legacy of their rural life. In practice UA proves to be a complex action integrated into the urban fabric.

*Opportunity Cost of Labour:*

According to Webb [45], the opportunity cost of time is an important factor in determining who participate in UA. According to Webb [45], those with low opportunity costs of time will participate in UA. The low value of the participants’ time is a function of failing to meet criteria associated with high remuneration. This could be due to age, gender, physical disability, education and skills. Although this may be true, it is important to note that it is applicable to other activities as well. Labour will always be shifted to where higher returns are earned. The ability of the market to provide formal employment may also force people into available and informal alternatives. This labour is therefore used in its next best alternative rather than left to idle.

*Spatial Dimension of Urban Agriculture:*

Surveys consistently show that the area effectively under UA is much greater than conventional land use classifications and maps may capture [21]. Reported areas often exclude forms of UA in residential spaces. Land used for UA is also found adjacent to road and railway lines, rivers and valleys, along power lines and other open spaces within urban boundaries. The sizes of the plots differ according to the availability of space and the ability of the individual to work the area. Land used for UA is not always within the residential site [40]. Plots are in some cases considerable distances away

from residential sites. UA practices are spatially spread within urban boundaries. The dispersed pattern results from the mobility of the sector as it constantly shifts from one place to the other giving way to urban developments.

#### *Theoretical Framework for Urban Agriculture:*

The basic model of Von Thunen adapted to city development by Burgess and by the Van Rooyen *et al.*, [40] team framework for this study with the economic rationale for UA. The main features of this framework are the following:

(i) UA is derived from the rational resource allocation of (poor) urban dwellers whom are not in a position to earn sufficient income from non farming to provide a sustainable urban family livelihood;

(ii) UA can be explained by cost saving and reduction in transaction costs from a consumer

(ix)

viewpoint (point of consumption to point of food acquisition);

(iii) UA can be explained by the initial comparative advantage of newly urbanized groups with well-established rural food production skills;

(iv) UA is often a temporary survival strategy to allow a fallback position if sufficient urban income is not generated;

(v) UA is a rational response to existing opportunities in terms of the market for produce;

(vi) UA is practiced mainly to address household food security with surpluses sold in the market

(vii) UA occurs because of the possibility of free riding on resource use. UA practitioners can utilize land and water without paying for these resources.

(viii) UA could be scaled according to the available resources (land and other inputs) and the market.

**Table 1: Urban Agriculture farming systems**

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

Source: Sawio, [30]

Lack of detailed information on crops planted is a common omission by many UA studies. Literature studies referenced do not provide sufficient details on crops grown and farming systems in UA. No significant attempt to evaluate the relative importance of crops grown and their economic relevance within a particular land use system are made. Smit [31] argues that, studies by Wade [44] simply list or prescribe the crops grown. The production of crops should be based on the sustained contribution to consumption levels, the value of the crop consumed, length of harvest and the sale of the crop. Frequency of cultivation and total area planted is not sufficient to determine crop importance. According to Mougeot, [21], crop choice by farmers is based on local water supply, soil condition, distance from home, plot size, use of the product and the gardener's control over future use of the plot.

#### *Economic Development of Agriculture Sector in Malaysia:*

The growth in demand for food is viewed as a function of population growth, per capita income growth and income elasticity of demand for food [18]. Non-uniform changes in population growth, increased urbanization, increased per capita income and changing income elasticity of demand for food groups causes asymmetrical expansion and structural changes in domestic demand for food and agricultural products [42]. Urbanization particularly of poor black population is expected to lead to a structural change in the need for food due to different consumption patterns between urban and rural populations.

The agriculture sector is estimated to grow at a slower rate of 3.0% per annum as compared to 3.2% per annum during the Eighth Plan period (Table 2). The slower growth was mainly attributed to a decline in the output of rubber and sawlogs due to a reduction in rubber hectareage and controlled logging for sustainable forest management. However, increases in the output of palm oil, livestock and fisheries supported the growth of the agriculture sector.

**Table 2:** Sectoral performance under the Eighth and Ninth Malaysian Plan

Sector	8 <sup>th</sup> MP (Annual Growth Rate %)	9 <sup>th</sup> MP (Annual Growth Rate %)
Mining	2.5	-0.5
Construction	1.0	4.4
Agriculture	3.2	3.0
Manufacturing	6.1	1.3
Services	5.5	6.8

Source: Department of Statistics, Malaysia 2011.

**Table 3:** Gross domestic product by industry origin, 2010-2020

Sectors	RM million (in 2000 prices)			% of GDP			Average annual growth rate (%)	
	2010	2015	2020	2010	2015	2020	2011-2015	2016-2020
Agriculture, forestry and fishing	40172	46706	53153	7.5	6.4	5.2	3.1	2.6
Mining and quarrying	41867	44309	46615	7.8	6.1	4.6	1.1	1.0
Manufacturing	138852	181465	245140	25.8	24.9	24.2	5.5	6.2
Construction	16963	20559	24019	3.2	2.8	2.4	3.9	3.2
Services	317010	453831	682401	58.9	62.4	67.3	7.4	8.5
GDP at 2000 constant prices	538069	727510	682401	100.0	100.0	100.0	6.1	6.9

Sources: Department of Statistics, Malaysia 2011.

The Government will also focus on developing comprehensive innovation and research and development (R&D) infrastructures in selected areas where Malaysia has inherent strength and competitive advantage (such as downstream palm oil, modern agriculture, and oil and gas) in order to become a world leader in these areas. Innovation and R&D initiatives will also be aligned with NKEAs and the geographic cluster strategy to ensure that the science and technology development is consistent with the overall economic agenda.

The supply side highlights the shape and structural trends of the economy (Table 3). As income rises the share of agriculture to GDP will continue to slide. There will be industrial deepening but manufacturing's share of GDP is anticipated to fall slightly to 24.9% by 2015 and marginally further to 24.2% in 2020. On the other hand, service's share of GDP will increase from almost 59% in 2010 to slightly above 67% by 2020 [22].

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One of the key messages of the NEM framework is to leverage on our core strengths, one of which is our rich heritage of natural resources. The largest contribution to Malaysia's GDP is the services sector, of which the largest component is tourism. The tourism sector relies heavily on our natural resources such as tropical rainforests and marine life as key attractions. About 5% of the labour force earns their income from domestic and international tourism. In addition, 12% of the population derives

their income and livelihood from agriculture, forestry and fisheries which together generate 7.5% of GDP.

The NEM considers that sustainable agriculture should be fostered through the development of productive, competitive and efficient agriculture, forestry and fishery techniques, while at the same time protecting and improving the natural environment and conditions of the local communities. The sustainability principles call for the production of crops with high yield and income, ensuring minimal effects on soil fertility, water and air quality, and biodiversity. They also call for optimizing the use of renewable resources and enabling local communities to protect and enhance their well-being and neighbourhoods.

During the Tenth Plan period, these high value agriculture activities will be given special focus such that the contribution to GDP increases to 2% by 2015. Strategies to achieve this include:

- Setting up agriculture consortiums and cooperatives to reap the benefits of scale, encourage adoption of accredited practices by farmers, fishermen and agpreneurs, and strengthen marketing through contract farming and strategic alliances;
- Reviewing and streamlining current regulation and procedures, particularly in the swiftlet, aquaculture and herbal industries to attract greater investments and participation from private sector;
- Promoting innovation-based growth and production processes that utilize modern farm technology and ICT, including ICT-based Agriculture Flagship Project;
- Providing adequate and specific infrastructure, facilities and logistics to support value addition activities based on availability and proximity of resources, particularly in the designated Permanent Food Production Parks and Aquaculture Industrial Zones; and

- Intensifying collaborative R&D with established agriculture research institutes to leapfrog innovation in the production processes, disease control, safety and quality control, including development of new high-value added products.

In addition, food security will be strategically addressed to ensure the availability, accessibility and affordability of food, particularly rice for the general public. During the Plan period, strategies to ensure sufficient supply of rice include maintaining rice stockpile at 292,000 metric tons or sustained consumption for 45 days, entering long-term contract agreements to import rice with matching agreements to export palm oil or oil, and increasing the productivity of existing granary and non-granary areas through upgrading of infrastructure. No new areas will be developed for paddy cultivation and local production of rice will be set to fulfill a 70% level of self-sufficiency [34].

#### *Urban Food Security:*

In addressing urban poverty the question of food security is important. Food is needed to improve the health of urbanities and to sustain the level of city productivity including labor force. Neglecting urban agriculture contribution based on negative perceptions endangers future urban food security and sustainable urban land development. Likewise, environmental degradation within unorganized settlements will increase health risks and crime due to increased unemployment in the future. Thus, regular checks and balances of food security as a social and economic need in urban development process are essential for improved urban land governance. It is the author's view that all food produced in the city, plays a role in sustaining social and economic safety nets. Therefore it is the inescapable truth that urban agriculture is a vehicle for urban poverty reduction for a majority of residents involved in the sector within the city. This will help redress urbanization impacts in Malaysian cities in the future.

Malaysia as a net food importer is highly exposed to external forces such as rising food prices and volatile supply of rice in the international market due to adverse climate conditions, natural disasters and hostilities. To achieve national food security, it is crucial for the country to protect existing farm areas and enlarge prime agriculture land, particularly the granary areas for rice cultivation. The challenge is for the authority concerned to come out with acceptable fiscal incentives to offset the potential loss of development rights and revenues of the affected states in meeting national needs to protect and enlarge granary and prime agriculture areas in the states[23].

#### *Issuing Urban Agriculture:*

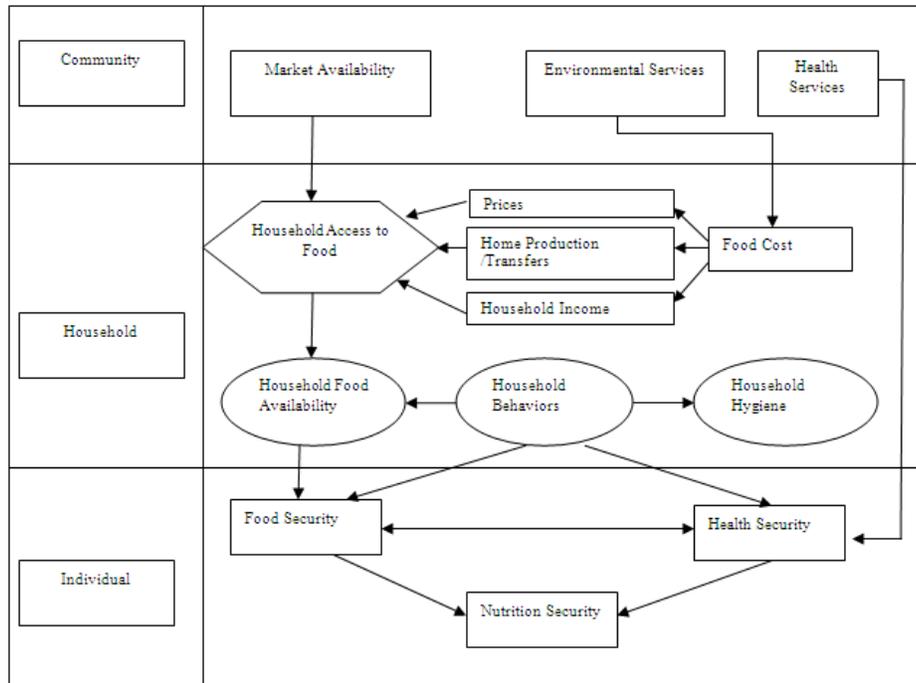
Although most of the world's poor people now live in rural areas, the numbers of urban poor, from market towns to megacities, are substantial and cannot be ignored. World population is expected to grow from 6.7 billion to 9.2 billion between 2007 and 2050. Virtually all of the 2.5 billion increases will occur in the developing world's urban areas [37]. This rapid urbanization is pulling the balance of poverty into cities. In 1993, 1.3 billion people in the developing world lived in extreme poverty (i.e., on the equivalent of less than US \$1 per day). Nineteen per cent, or 247 million people, lived in urban areas. By 2002, the population in extreme poverty had declined to 1.2 billion people, but the urban share had increased to 25 per cent, and the number of poor urban residents had increased to 300 million [5].

Despite higher rates of poverty in rural areas, rural food insecurity is not necessarily higher than that in the cities. In fact, as Figure 1 indicates, in 12 of 18 selected low-income developing countries, the incidence of food insecurity (as measured by food-energy deficiency) in urban areas is the same or higher than in the countryside, even though urban areas on average have higher incomes [1]. In times of food price crisis, to focus primarily on rural food insecurity and agricultural production is to miss a large part of the problem.

In low-income neighbourhoods, people frequently live in crowded conditions, with poor-quality housing, poor or non-existent garbage collection, unsafe drinking water and non-functional or nonexistent sewage systems. In the urban areas of low- and middle-income countries, between 25 and 50 per cent of the population lack access to clean drinking water and safe sanitation [38]. Urban poor people often do not have physical access to healthcare, and even when they do, they may not be able to afford it [39].

#### *Planning Policies And Strategies:*

A planned urban environment generally considers farming as a non-urban land use activity [40]. It is stated in the Gauteng Provincial Government Policy Document (Gauteng Small Farmer Settlement Programme Policy Document) that existing land allocation and tenure policies in relation to government owned agricultural land are viewed inappropriate for agricultural development in Gauteng [10]. Urban authorities view UA as remnants of rural life interfering with modernization. This attitude denies UA the necessary support and attention. Public sector support to UA was directed to serve large-scale commercial farmers adjacent to urban concentration ignoring small scale and informal operations [40].



**Fig. 1:** Determinants of food, nutrition and health security  
 Source: Adapted from Unicef, 1998.

Many urban agricultural projects have failed because of inappropriate planning and implementation approaches such as top down and supply led approaches. Other causes of failure include poor and inadequate consultation with relevant stakeholders, political situation and unclear definition of ownership. These problems can to a large extent be identified and analyzed within a farming system research approach to UA. The fundamental value of a farming system research approach to analyze UA is the recognition of the technical economic and social rational of a system within which farming is practiced [14]. Often urban farmers are neglected and misunderstood by local, regional and provincial governments and rural non-farm neighbours. Uncontrolled subdivision of land causes sporadic distribution of industries, commercial centers, residential sites etc into productive prime agricultural land and this result in fragmentation of agricultural land and rise in land use conflicts.

*Strategic Considerations for Successful UA:*

As a summary of this chapter, the following general strategic considerations for success derived from this literature review can be proposed for a viable UA system.

i) Integrated approaches: based on the literature review, it can be argued that UA should not be excluded during urban development

planning. To optimize the contribution and functioning of this sector, the link between the activity and the rest of the urban economy must be understood and strengthened. UA should be systematically integrated into the urban system.

ii) Policy development: The potential role of UA in poverty alleviation and urban economic growth will depend on the strengthening of the asset base of the urban poor as well as on policies relating to UA promotion. Policies are critical for the creation of enabling environment for UA development.

iii) Planned interventions: Specific agricultural policies supported by the zoning of high potential farming areas and the provision of access to a range of economic and technical support services are required for UA development [40]. The public and private sector partnership should be engaged to provide support services.

iv) Flexibility and innovation: The promotion and development of UA requires flexible and innovative strategies. Innovative and valuable solutions to urban problems are often found in grassroots experiments or small-scale local government pilot projects [12]. To achieve maximum impact, successful innovations should be up scaled and replicated.

v) Diversity: Different farmer types should be supported with services relevant to their respective needs. Government efforts should pay particular attention to the problems experienced by the

emerging commercial and small holder household food producers.

vi) Participative planning: Interactive and participative approaches based at community level should be applied to create ownership at community level. This should be supported by co-ordination of services by different stakeholders. A synergistic approach with balanced participation between target group and authorities in policy and decision-making is required.

*International Policy Prescriptions: Necessary but not Sufficient for Urban Food Security:*

There is a remarkable amount of consensus about how to address the global food price crisis, both in the short and long run. The Comprehensive Framework for Action (CFA) issued in July 2008 by the UN High-Level Taskforce on the Global Food Security Crisis reflects this consensus and calls for action in four areas to meet the immediate needs of vulnerable populations:

- enhance, and improve access to, emergency food assistance, nutrition interventions, and safety nets;
- boost smallholder farmer food production;
- adjust trade and tax policies; and
- manage the macroeconomic implications.

Attention to emergency assistance and safety nets can apply to both urban and rural dwellers while other measures are more relevant for rural areas, such as supporting smallholders. Adjustments to trade, tax and macroeconomic policies can have important impacts on the urban poor, if they help to moderate food price rises.

In addition to this package, the CFA calls for additional complementary action to 'build resilience' in the longer term:

- expanding social protection systems;
- sustaining smallholder-led food availability growth;
- improving global food markets; and
- developing an international consensus around biofuels.

The longer-term focus regarding social protection programmes aims to enhance government capacity to design and implement policies and programmes, improve programme efficiency, shift from unconditional to conditional assistance (e.g., by focusing on school feeding as a means to boost school enrolment, especially for girls), and improve diet quality through agricultural policy and food fortification.

These longer-term efforts to strengthen social protection could affect both urban and rural dwellers. But again, other recommendations focus much more on agricultural production and global-level marketing, such as increasing investment in technologies and infrastructure and pressuring for a more open agricultural trading system. Although

these actions may help to lower average prices and improve the efficiency of the food system in the long haul, they have only indirect, and non-immediate, effects on urban dwellers.

With some variations, other international organizations and NGOs have adopted a similar set of immediate and longer-term actions. IFPRI has proposed 'an emergency package' and a longer term 'resilience package' to address the crisis [43]. FAO advocates a 'twin-track' approach: safety nets and social protection to ensure immediate access to food for the poor and vulnerable in both rural and urban areas, combined with smallholder-led agricultural and rural development. Oxfam International makes similar recommendations, while also emphasizing poor people's participation. Forum Terra Preta [9], the parallel civil society meeting organized during the High-Level Conference, offered sharp challenges to corporate control of food systems and trade liberalization, while championing agro-ecology and human rights. Nevertheless, its action plan included many of the same points as the CFA, including a strong emphasis on smallholder agriculture.

In short, there was a substantial measure of policy consensus on how to approach the global food price crisis. Beyond the important area of social protection, this consensus focused primarily on rural and agricultural issues and only indirectly on the urban impacts of higher food prices. However, if they are to be effective, policies and programmes to address the problem of urban hunger in the face of food price rises need to better reflect the urban context.

**Recommendations:** Based on the study, a number of recommendations to improve the performance of UA have been highlighted. These include:

- Recognize agriculture as a land use activity in urban environments
- Provide sufficient support services to the urban small scale agricultural sector
- Encourage or introduce the teaching of agriculture as a subject in urban schools
- Encourage investment on infrastructure and technology development required for UA development
- Co-ordinate agricultural activities within urban and between urban and rural areas
- Involve beneficiaries in the planning and implementation of projects
- Assistance should not only focus of groups but should also consider individuals
- Establish permanent structures and institutions that will promote urban agriculture activities

*Conclusions:*

Sustainability is about parallel care and respect for ecosystems and all the living beings within it.

Environment, society, health and economy all have to be addressed simultaneously to successfully move forward toward harmony between each other and with our surroundings. For Peninsular Malaysia there are some relevant, significant and practical suggestions on how to achieve this harmony in the context of urban and peri-urban agriculture.

Peninsular Malaysia and other urban areas have similar environmental, social and food security problems. Ecosystem service degradation due to agricultural practices and solid waste issues are things that the city could tackle through urban agriculture. This study indicates there is a large potential to utilize different inner-city spaces for food production. This could contribute to food security and sovereignty for Malaysian citizens of any background. From an economic standpoint, there appear to be good prospects for local food sourcing and agri-tourism that the city should consider for future planning. Limited resources for urban farming in terms of water and finances can be addressed with cooperation, the right knowledge and creative thinking as detailed below.

Urban agriculture can also have great potential for empowering citizens and educating the public about environment, local food and food politics. Political and legal barriers to urban agriculture also exist regarding integration into official city planning and land tenure. All of these aspects need to be addressed along the path towards a more sustainable, vibrant Peninsular Malaysia.

The investigation of the role and importance of UA is an important issue because of the opportunities it provides for economic development through contributions to household level food security and income generation. Differences in view points between urban authorities and the urban agriculturists are however also apparent. The topic of UA is under-researched in Malaysia and therefore not much is known about UA. UA is consequently not viewed as an important development strategy yet. The theoretical viewpoint that UA does not contribute significantly to economic development is contested by its continued presence in sprawling urban environments. People operating at that level view UA as an economically worthwhile activity in terms of time and their meager resource base.

In this study, this viewpoint is substantiated by the analysis of UA in Malaysia. The analysis showed that UA contribute to household food security through saving on food expenditure and cash income generation. UA also facilitates food distribution at reduced costs. With the number of the poor increasing in urban areas, UA will remain one of the survival strategies within the informal sector used by the urban poor.

However to strengthen the potential impacts of UA a more holistic strategic approach that focuses on infrastructure and human resource development

will be required. UA tends to continue under difficult conditions and is able to sustain with the available resource base. This reflect innovative and efficiency of the poor. The poor uncover hidden resources and use them to produce goods of economic value. Proper support to this activity will therefore contribute to improving food security of many poor households in urban areas. As the number of the urban poor increases with urbanization, the proportion of the poor in urban areas is likely to surpass those living in rural areas. This requires actions to ensure that food is available for these poor.

### Acknowledgements

Financial assistance provided by the research university Grant UKM-MI-OUP-2011 and UKM-AP-PLW-04-10. Institute for environment and development, University Kebangsaan Malaysia is gratefully acknowledged.

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