

IDENTIFICATION OF URBAN FARMING IN THE GREEN KAMPONG YOGYAKARTA

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ABSTRAK

Perkembangan kota yang paling terlihat adalah dari aspek fisik, yaitu pertumbuhan lahan terbangun. Pertumbuhan lahan terbangun yang terus-menerus akan mengakibatkan penurunan daya dukung wilayah. Oleh karena itu, dalam perencanaan tata ruang dan perencanaan kota, harus mempertimbangkan ketersediaan ruang terbuka hijau (RTH). RTH ini memiliki fungsi perlindungan lingkungan. Salah satu bentuk RTH dapat berupa pertanian. Pertanian di kota sekarang ini populer dengan istilah pertanian perkotaan (urban farming). Beberapa manfaat dari urban farming yaitu (1) meningkatkan pendapatan; (2) kesempatan kerja; (2) optimalisasi ruang kota. Penelitian ini bertujuan menginventaris dan mendeskripsikan urgensi urban farming. Metode yang digunakan yaitu deskriptif kualitatif, dengan menganalisis data sekunder dan survei di beberapa titik sampel. Titik sampel diambil secara proporsif di kampung hijau Kota Yogyakarta. Hasil penelitian yang diperoleh yaitu urban farming di kampung hijau Kota Yogyakarta sebagian besar berupa tanaman pangan dan tanaman hias. Urgensi kegiatan urban farming adalah sebagai alternatif pada suatu lahan terbatas, terutama bagi wanita dan penduduk yang tidak lagi kompetitif untuk bekerja, serta membantu dalam pemenuhan kebutuhan pangan dan perlindungan lingkungan.

Kata Kunci : Urban Farming, Kampung Hijau, Kota Yogyakarta, Inventarisasi, Urgensi

ABSTRACT

The most visible of the city development defined by the physical aspect such as the growth of the built-up area. The continuity of built-up area's growth will decrease the carrying capacity of the region. In term of urban planning is worth considering the provision of green open space which is has the function of environmental protection. One of urban green open space named agriculture. Farming the urban area now is popular with Urban Farming. The benefits of urban farming are (1) increasing the income level of city; (2) building up the job opportunity; and (3) optimizing the urban space. This research takes place in Yogyakarta to inventory and to describe the urgency of urban farming. This research uses qualitative descriptive method by analyzing secondary data and surveying in sample spots of Urban Farming been done. Sample spots are decided by purposive sampling in kampung hijau (the green kampong) Yogyakarta. The result is in green kampong are mostly planted by consumption plants and ornamental plants. It is being urgent alternative to be done in limited area where women and people are not only competitive again for working but also help them fulfilling the daily consumption on farming products and environmental preservation.

Keywords: Urban Farming, Green Kampong, Yogyakarta, Identification, Urgency

INTRODUCTION

Cities are defined as the center of economic activity, seat of government, and the concentration of settlements with heterogeneous of the structure and the way of life its society (Lindgren, 1974, in Suharyadi, 2010). Urban areas are considered with large human populations, high density of built-up area, and heavy traffic. The kind of cities can be differenced based on their population numbers, the following are small cities, medium cities, big cities, metropolitan, and megapolitan (Yunus,

2004). Population growth has an impact on the growing demand for space, especially settlements that later conducted pin the built-up area growth. From the negative side, city is a burden for the environment and natural resources, as many problems that caused by environmental degradation from urban area, such as the high consumption of natural resources (food, water, soil, fossil fuels, etc.) that cause various forms of pollution (air, soil, and water pollution).

Urban environmental management is an effort reflects the level of environmental concern to the forefront of city development (Inoguchi,

2003) by involving many stakeholders. So how is the condition or quality of the urban environment can describes how the synergy of all stakeholders in environmental management, as well as how the government gives attention to the environmental sustainability to achieve sustainability of the city. Sustainable development became development mainstream when there was a lot of environment degradation which is pushed issues of environmental sustainability become to central theme in the region development. Therefore, the commitment of sustainable development must be accommodate in the city development, so it can creates city productivity, fair, and environment-friendly through the application of the principles of sustainable development in the function and city land use (Inoguchi, 2003) because city and its environment are not only enjoyed by present residents but also by future generations.

The intensity of urban built up area that are not offset by the availability of open space gives negative impact to the environment. Open space consists of green open space and non-green open space. Green open space is part of city spatial planning as the lungs of the city. In spatial planning of the city, each region is required to have green open space of 30 percent of total area or watershed. Green open space in the city consists of urban forests, parks, recreation areas, and yards. Green open space designated as ecosystem protection, recreation, environmental conservation, research and education, plasma protection, improving microclimate, and reservetion water media (Muta'ali, 2012). According to the research that has been done by Fandeli (1994) green open space can reduce air temperature of the city. The main problem of the provision of the green open space is the limited land in the city. Construction in the city is generally carried out extensively and prioritized the development of built up area to fulfill the function of city as the center of economic, governmental, and residential areas. Nowadays, extensive development in the city being out of control due to lack of land use rules. The impact is many cities can't provide green open space due to strong pressures of built-up area growth extensively to accommodate large and complex urban activities.

Agriculture is an activity which is includes food crops, horticulture, plantations, and farms, covering upstream farming, field farming, agro-industry, marketing and supporting services for natural resources management in an appropriate and sustainable agro-ecosystem, with the help of technology, capital, labor, and management to get

maximum benefit for the society welfare (Undang-Undang Republik Indonesia Number 16 Year 2006). Agriculture is one form of green open space which is important for each region, especially city. However, agricultural in city displaced by urban activities (services, industry, and trade) as the rapid development of the city. In fact, agriculture is one of the important activities to support food production for consumption. Yunus (2008) states that unused land in the city can be used or developed as a new cultivated land without interfere with the city development. Urban agriculture is an effort to optimize land (Bintarto, 1977). Urban agriculture can be called with the term of urban farming. Urban farming or urban agriculture is the production of field for food and non-food in urban and suburban areas, can be organic farming, vertical farming, roof gardening, fisheries, farms, urban forest, medicinal plant family, and so on (Yeung, 1990, in Mayasari, 2009). The types of urban farming activities divided into two main groups (Boukharaeva and Marloie, 2006), that is professional urban agriculture and family urban agriculture. Professional urban agriculture consists of farmers with a variety of income levels and perpetrators of agribusiness, which focuses on urban farming for commercial outcomes. While family urban agriculture consists of people who doing urban farming in leisure time as a hobby and the agricultural products for personal consumption or distributed to their relatives and not commercialized.

Urban farming is also found in other countries, such as commercial urban agriculture in cities in Australia developing a system of hydroponic and aquaculture, as well as the intensification of agricultural technologies (Bodlovich, 2001). In the study of Maconachie, Binns, and Tengbe (2011) shows that urban farming in Freetown has growing rapidly and contributed to increasing and food security. Urban farming in Indonesia, by Setiawan and Dwiata Hadi Rahmi in the Journal of Research News (2004), located in Bandung, Surabaya, Yogyakarta, Cirebon, Salatiga, and Pacitan, which provides benefits to fulfill the food requirements, increasing of income level and job opportunity, by utilizing vacant land in the city.

Smit (1996, in Bodlovich, 2011) states urban farming has benefits more than in the village in terms of reducing pollutions and utilizing organic waste. According to a research conducted by Mayasari (2009) with a case study in Mantrijeron District, Yogyakarta, ornament plants, a kind of urban farming can be adding to

the household income. It means that urban farming can be a job opportunity or business. In the other side, urban farming can encourage the growth of ecology implementation by the communities by the principles of “think globally, act locally”. Urban farming is a real action on local scope environmental management to create quality environment and environment sustainability for the benefit of the global society. In addition, accompanying urban century with Agenda 21 (initiated in 2000) that has the concept of sustainable cities, urban farming can be an alternative to improve the quality of city life, both of ecological and economic advantages.

According to Agronomers Indonesia (2011), urban farming was initially based on the recognition of urban environment degradation, and also the issue of global warming which is increasing now. Urban farming can give its contribution to the food supply, which is to increase the amount of food for the urban population and provides vegetable / fruit / fresh meat for consumers in city. Urban farming is based on the economic and environmental value. Through the activities of urban farming, land use can be optimized through the cultivation in a limited field and selection plants with economic value according to the needs of society, such as food crops, ornamental plants, and oxygen supplier plants for the city. Indonesia has been started in urban farming implementation, such as Jakarta, Surabaya, including Yogyakarta. In Yogyakarta, the regulation of city council number 515 year 2007 states that for every parcel of new buildings should be set aside ten percent for planting which can provide added value for the family. It can be the basis for the implementation of urban farming in Yogyakarta. According to the Balai Penyuluhan Pertanian Yogyakarta in Giwangan Village, Yogyakarta residents still have a business in agricultural sector, as following are farming, ornamental plants, fruits, vegetables, fisheries and livestock.

Urban farming in Yogyakarta is in line with the idea of Indonesia Berkebun which is one of the acts of a group aimed to optimize the use of existing vacant lands in city by increasing their productivity through planting various agricultural commodities. The idea was started by M. Ridwan Kamil, an architect who received the International Young Design Entrepreneur Award 2006 from the British Council (The Jakarta Post, 15 April 2012). The chief of Kantor Pertanian dan Kehewanan Yogyakarta, Ir. Machmud Aswan, said that Yogyakarta still has rice fields of about 98 hectares spread in the District of Umbulharjo, Kotagede, and Tegalrejo. Rice

yields are quite significant, as in the Umbulharjo, the production is 8.8 tons per hectare. Regarding to the fields in Yogyakarta which are shrink about five percent every year, Aswan advised the farmers to utilize the remaining land by planting high-value crops, such as rice, sweet corn, organic fruits and vegetables (Yogyakarta Regional Information Agency, 2008). Urban agriculture or urban farming can be applied to the concept of *kampung hijau* (the green kampung). The green kampung has variety of sense, in this research the terms of green kampung refers to the notion under the guidance of environment department, Badan Lingkungan Hidup in Yogyakarta. Green kampung is a village with the integration of every component or aspect, such as environmental, institutional, community participation, and so on. In terms of urban farming, green kampung has the land use for green yard, especially economic plants. The research of urban farming with the locus on green kampung Yogyakarta is an important study, in this case is the inventory and urgency, so it can developed further urban farming as activity that has a lot of advantages from various aspect, including environmental and economic aspects.

The development of the green kampung in Yogyakarta means giving space for each household forming their micro space and environment. The challenge of green kampung concept is implemented in urban areas with limited space conditions. The principles green kampung organization are handling the environment, cultural activities, the plans of program that had been developed in a participatory, action in hygiene and environmental health, conservation of natural resources, management of economic infrastructures and public facilities (BLH, 2010). The one establishment of the green kampung is grounded in Undang-Undang Number 32 Year 2009 about the Protection and Management of Environmental (Perlindungan dan Pengelolaan Lingkungan Hidup) which states that everyone has the right to a better environment and healthy and responsibility to preserve the environment, controlling pollution and environmental damage.

Green kampung (BLH, 2010) consists of several components, the following are physical, management, the role of the community, and culture. According with urban farming, a component of the green kampung is the role of the community, particularly the role of the community in the environment aspects, one in yard optimization. The yard will have economic value to its owner, if it is managed effectively and efficiently (optimized). The yard can be

planted with productive perennials, herbs, vegetables, and ornamental plants. So the yard can have a double benefit, as valuable economic assets and environmental conservation (water catchment, green open space, etc.). Therefore, one aspect of the green kampong assessment is the wide of greening in the yard (said to be good if more than one-third of the yard used for greening) and the plants with economic value (said to be good if more than one-third of the yard used for economic value plants).

RESEARCH METHOD

The method of this research using survey. Singarimbun (1995) stated a survey research method is a method of research takes samples from population and use questionnaires as tools of data collection. The application of survey methods in this research begins with some secondary data's review obtained from the relevant institution. Secondary data is data obtained indirectly. Secondary data used in this research is institutional secondary data obtained from Badan Lingkungan Hidup (BLH), Yogyakarta includes the data of green kampong in Yogyakarta, components of green kampong, and others.

Population used in this research is areas with urban farming activity and samples were taken in green kampong based on BLH's criteria or target under BLH Yogyakarta. At each sample (through purposive sampling) were selected to be interviewed by semi-structured questionnaires was prepared in a household with type of urban farming represented by this point. Interviewing was done to identify urban farming activities undertaken by the respondents, both commodities, goals, and others, understanding the urgency or importance of urban farming in providing job opportunities, increasing income, and its important role in the livelihoods of households in sample locations.

Interviews were conducted using semi open questionnaires. The questionnaires contains questions on the following matters: respondent's knowledge about urban farming, land ownership, yard-land use, plant types or commodities, long run of urban farming, the offender of urban farming, urban farming product utilization, and future expectations. Interviewing is expected to answer the research goals, identification and urgency of urban farming especially in green kampong Yogyakarta. This interview is considered critical to the interpretation of results and in order to triangulate the data analysis. In-depth interview made to the relevant department, Badan Lingkungan Hidup Yogyakarta about green kampong in Yogyakarta and its component.

RESULT AND DISCUSSION

Yogyakarta has key sectors in trades, hotels, and restaurants, started toward service sectors (Location Quotient calculation results, 2008), also GDP's growth shows the economy continues to grow over time. Yogyakarta as the education city with all its attractiveness makes substantial urbanization, more and more people living in Yogyakarta. Conversion from agricultural land into non-agricultural land or built-up area due to human need for land and it is not offset by the availability of land. These needs are primarily for residence, while the need for housing is increasing as well as the population increasing.

Land use or built-up area density gives a limited space for the availability of green open space. Therefore, limited space but the availability of green space that should not be overlooked, the availability of green space can be operated even with a minimalist space. One is the form of urban farming. The function of urban farming as a green space can also produce food, raise incomes, and others because of the selection of consumed plants and economic plants, so it can be commercialized. As according to Boukharaeva and Marloie (2006), the actor of urban farming can be classified into two types, professional urban agriculture and family urban agriculture. Professional urban agriculture focused on urban farming to commercial outcomes, such as paddy fields that are still in the city, ornamental plants business, fruit crop, cattle, and others. While family urban agriculture priority for hobby, spent free time, personal consumption or distributed to relatives and not commercialized. Family urban agriculture is usually performed by utilizing the limited space on the yard. Urban farming or urban agriculture is widely not only limited to farming activities, but also includes fisheries and livestock.

Green kampong in Yogyakarta is an ideal kampong or village design with integrated several aspects, one is the use of the yard for economic planting, such as medicinal plants, ornamental plants, vegetables and fruits, also other uses in fisheries or farms. Although not commercialized, these plants provide some added value for the owners. The following will describe some of the things finding from the observation and interview using structured questionnaires. This is used to answer the goals of this research, which is identification of urban farming activities (types, commodities) and urgency (importance) of urban farming activities. Total of respondents in this research are fifty one with different age, gender, and profession.

The early part of interview aimed whether the respondents have knowledge about urban farming to lead to further questions. Most of the respondents knew about urban farming activities. This indicates that urban farming in green kampong Yogyakarta is initiative by top - down and bottom - up. Top - down means instruction from the government or stakeholders, one is the regulation from city council of Yogyakarta number 515/2007 which states that for every parcel of new buildings should be set aside about ten percent for plants that can provide some added value to the family. From this regulation, then it's managed by each village and other community organizations. It is obtained from the interviews that the initiators of urban farming is the chief of Rukun Tetangga (RT), Rukun Warga (RW), Kelompok Wanita Tani (KWT), Pembinaan Kesejahteraan Keluarga (PKK), which is derived from greater level of government. There is also support from other government agencies, for example through the provision of seeds and socialization by Department of Agriculture. This support there in Bener Village, District of Tegalrejo. While bottom - up means an initiative or awareness of the community itself, as in the Terban Village, District of Gondokusuman and Bener Village, District of Tegalrejo, the respondents state any awareness to make their environment better.

Most of land use in the yard is farming activities. Farm (cattle) activities are in the Terban Village, Bener Village, and Giwangan Village, with the types of the cattle is poultry (chickens and ducks). While fisheries are in the Bener Village and Giwangan Village, District of Umbul Harjo, with the types of carps, catfishes, and koi. While the types of cultivated plants are also different, there are consumption plants, which is a plant that can be consumed. Consumption plants include vegetables and fruits. Most respondents choose chili because it can be consumed, easy maintenance, and can only requires little space. While ornamental plants are also widely cultivated by the respondents. Other plants are medical plants, but these plants are still little cultivated. Medical plants owned by some respondents, in Cokrodiningratan Village, Terban Village, and Pandeyan Village. Besides plants, the number of respondents also had livestock and fisheries activities, chickens in Terban Village; chickens, ducks, carps in Bener Village, chickens, catfishes, koi in Giwangan village. The reason for the selection of commodity or plant types are because of trend, easy care, attractiveness, can provides benefit, or distribution of seeds by government. Most of

urban farming activities had been carried out by the respondents for years.

Urban farming in green kampong Yogyakarta have been done by utilizing the limited yard because of the location of this research is densely populated settlements, so there is limited available land. An example is the yard area of about two meters square in the Bener Village and Bumijo Village are used for potted plants and fruits, although with the less number. The used land yard is variety from two meters square up to one hundred meters square. Besides land yard, non-utilized land, such as tanah kas desa, also has been widely used for farming. The actor of this urban farming in household level is that most of the findings in the field are female (mother) and men (father) who have retired. This shows the role of women in developing urban farming activities, also the participation of people who are not working (not competitive work) in spending time for this urban farming activities.

Utilization of urban farming produces are mostly for personal consumption, with the benefit for expenditure savings. Some respondents sell their farm products, including respondents in Kadipaten Village that sells ornament plants, respondents in Muja-Muju Village that sells ornament plants, and respondent in Sorosutan Village that sells rambutan and mango. Two respondents in Giwangan Village also sell their fisheries products, such as catfish. While the other respondent in Giwangan Village sells their poultry farms and food plants, such as spinach, banana, mango, rambutan, guava.

The benefits of urban farming obtained from interviews include:

1. Saving

Saving means the results of urban farming can be used for consumption, thus reducing the expenditure allocations for consumption. As many as 32 of the total 51 respondents or more than 60 percent think that urban farming activities do savings, although not significant because it is on a small scale. Saving example are planting herbs and planting for fruits and vegetables, such as spinach, kencur, ginger, chili, tomato, guava, mango, rambutan and others.

2. Environment sustainability or green environment

More than 60 percent of respondents also stated that the purpose of urban farming is for the benefit of the environment, such as to make the green environment, beautify the environment, environmental sustainability, comfort environment, reduce pollution and provide cool

air. Here is photos example related to environmental sustainability.

Environmental sustainability is one benefit of urban farming globally. Research from Bodlovich (2001) suggests the problems concerning the commercial development of urban agriculture (in the case study Australia and other industrialized countries) proved beneficial to the ecological and human welfare in the city.

3. Hobby

A total of about 70 percent of respondents have a hobby in gardening, urban farming so as to develop activities in their homes. As a hobby usually selected ornamental plants, such as Bougainville, Orchids, Flamboyant, Rose, and

others. The fulfillment of this hobby not only for pleasure but also to fill the time, mainly done by women who are no longer working. In addition, there is a statement from respondent that the plants can provide beautiful scenery, so as to avoid stressness.

4. Daily Food Supplier

The results of urban farming, particularly for crops that can be consumed provide a distinct advantage. Examples of plants that can be consumed such as vegetables and fruit, but it is also the fishery such as catfish, carp, and poultry, such as chickens and ducks.



(a)



(b)

Fig. 1. Urban Farming plants for saving purpose

(a) banana plants in Kelurahan Terban

(b) rambutan plants in Kelurahan Sorosutan



(a)



(b)

Fig. 2. Urban Farming plants for environmentally purpose

(a) shady plants in Kelurahan Pandeyan

(b) shady plants di Kelurahan Patehan



(a)



(b)

Fig. 3. Urban Farming for hobby purpose

(a) flowers plants in Kelurahan Cokrodiningratan

(b) garden shady plants in Kelurahan Patehan



(a)



(b)

Fig. 4. Urban Farming for food supplier purpose

(a) vegetables crops in Kelurahan Gambiran

(b) catfish pond in Kelurahan Giwangan



(a)



(b)

Fig. 5. Urban Farming Optimalization

(a) Bamboo garden roof in Kelurahan Terban

(b) Metal garden roof in Kelurahan Bener

5. Additional income (if sold)

Most of respondents who have urban farming activities do not sell their products, but they just consumed and shared it with their neighbors. There are only 6 respondents out of 51 respondents or less than 12 percent who sell the product of urban farming. The catfish products as are sold 100 thousand rupiahs per month, in addition rambutan and mangoes are sold too, for example, in the Village Sorosutan.

Besides some of the advantages of urban farming have been mentioned above, there are other advantages stated by the respondents, for example, in terms of health, do not use chemicals, such as the vegetable. Besides that, the study from Setiawan and Dwita Hadi Rahmi, in the Journal of Research News (2004), examines the urban farming located in six cities in Indonesia, Bandung, Surabaya, Yogyakarta, Cirebon, Salatiga, and Pacitan, concludes that policies should be developed to assist the development of an optimal urban agriculture to support food security in the city, creating employment opportunities, and support the sustainability of the urban environment. Subsequent research by Boukharaeva and Marloie (2012), examines the importance of urban agriculture (especially in urban family agriculture / FUA) as a component of sustainable human development. The conclusion that can be drawn from these studies is that the contribution of urban agriculture (especially FUA) towards sustainable human development is very important, but the current policy not to accommodate urban agriculture. Approach to urban agriculture in FUA can provide benefits, such as food security, the transmission of knowledge and culture, and environmental function.

Hope in the future urban farming development (based on interviews) will continue to be developed for additional consumption, investment, environment sustainability / green environment, additional income, as well as the new techniques, such as roof garden and vertical garden (verticulture). Roof garden has been developed in Pandeyan Village. Roof garden is also already widely developed in Yogyakarta, both on the road using poles and in houses.

CONCLUSION

Land constraints make urban land becomes less productive. while the city requires the presence of green open space. An effort to overcome the problem of limited land is urban

farming. This study found that there are several benefits of urban farming in addition as a function of green open space. The results of this study concluded the following:

1. Urban farming activities are carried out in the green kampung of Yogyakarta, mostly plants (crops and ornamental plants), while the others are also livestock and fisheries with a very limited amount.
2. Urgency of urban farming in the green kampung of Yogyakarta includes a limited land use as a function of green open space, the role and participation of women and people who are not competitive again for working, food needs (consumption), and environment sustainability or green environment.

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