GREEN CITIES

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THE EXPLORATORY STUDY FOR THE GREEN NEIGHBOURHOOD INITIATIVE PROVISION IN SUBANG JAYA, SELANGOR, MALAYSIA

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Abstract – This research reviews the findings from studies of exploratory for the green neighbourhood initiative provision in Subang Jaya. This stage is the starting point for determining the appropriate area to be selected for carrying out this study based on location, existing green neighborhood element, objectives and research approach. It is based on integrated physical planning that is expected to continue to develop not only can accommodate social need but, also can give benefit to economic and environmental. The aim of the study of exploratory is to get data and identify the existing green neighbourhood initiative provision, affected urban living development area within Subang Jaya, identify the location of a case study area, refine the research question and research approach in this study. The researcher chose to study the green neighbourhood initiative provision in the Subang Jaya area because it can give attractions, benefits and advantage of living in a particular urban area. At this stage, data collection was used in three ways, including document review, observation and interview. Five elements focused in this study are provided of pedestrian walkways, provision of bicycle lane, rainwater harvesting system, waste composting and community farming. In Subang Jaya it divided into 4 main areas and all the findings of green neighbourhood initiatives identified in each section which, total area for study area within 1,598,589 square meters. (2,122.7 acres). Discussion and conclusion of research had been made in this study.

Keywords - Community, Green Neighbourhood Initiatives, Sustainable

1 INTRODUCTION

Sustainability is a relationship that people have with natural resources. According to Ahmad and Misni (2018), sustainable is a practice. Urban sustainable development as a development that can cater to the needs of today's development without affecting the of development capabilities and future generations to meet their own needs. Wahi Mohamad, Zin, Munikanan, and Junaini (2018) mentioned since the United Nations Conference on the global agenda and the Human Environment in 1972, Malaysia has taken serious steps in addressing environmental issues and issues. In 1992, Malaysia also demonstrated its commitment to the Rio Summit afterwards the Malaysian Nature Environment. Sustainable and Environmental issues are undoubtedly the challenge of the 21st century. The current global climate change brings the need to serious in designing urban development. Cities now find themselves in the middle of the 'Green Revolution' as one of the most important development components to do sustainability. Shafii and Othman (2006) described sustainable development can improve the human quality of life and living for preserve supporting environment. Some of the innovations and city initiatives meant to make the city more sustainable, greener, healthier and environmentally friendly. Jugend, D., & Figueiredo, J. (2017) mentioned development for sustainability must consider the future generation. Development for element of sustainable must consider three main components which are social, economic and environmental aspects.

1.1 Background

The concepts that has introduced for sustainable city formation is the green neighbourhood initiative. This initiative is the first attempt to join the principles of urban sustainability with the level of community development at a micro level. Green neighbourhood initiatives designated using various indicators that go beyond traditional variables such as community farming, waste composting, pedestrian walkway, bicycle lane, plant protection, convenience, energy conservation and park size. In the Tenth Malaysia Plan, the emphasis was on the formation of a vibrant, compressible and vibrant city,

green technology development and green building, which is part of the green neighbourhood in urban living.

The Subang Jaya Municipal Council (MPSJ) was established in accordance with the Local Government Act 1976 (Act 171) under Section 4. Previously it was called the Petaling District Council before being known now as the MPSJ. In the effort of bringing to international level, which is the main goal of its Strategic Plan 2012-2030, as well as being a responsible Local Authority, MPSJ realizes the need to spearhead a green neighnourhood initiative to create a better urban living for its residence. Consequently, the project MPSJ Green City 2030 and Subang Jaya Local Plan 2035 was initiated and it falls into a prefect fit with The MPSJ brand as The Vibrant City. With a window of about 20 years MPSJ has taken several crucial steps to carry out this initiative.

1.2 Issues and Problems

The main sustainablity issues are in urban living is the lack of awareness about the importance of preserving the environment from stakeholders and communities. Such issues will be faced by every country in the world, including Malaysia's growing population with rapid urban development. Referring to the World Bank (2018), around the world, waste generation rates are rising. In year 2012, people in the world's cities produce 1.3 billion tons of solid waste annually with an estimated 1.2 kilograms per day. By year 2025, with the growing population growth and rapid urbanization, municipal waste generation expected to increase to 2.2 billion tonnes. The waste managed will contribute as a breeding ground for disease vectors, contributing to global climate change through methane generation and promoting urban violence.

According to Zakaria, R. et al. (2012), the preparation of development shall be improved to be more comprehensive in adopting the green neighbourhood concept in urban living. The green neighbourhood elements which are scattered in few departments' guidelines did not coordinate well and this makes the implementation stage even tougher. There were no single detail guidelines that can solve the problem in current practice. The need for a proper framework and guideline that can include all the green neighbourhood elements into one guideline need to be set up so that the reference can be evenly followed by all level planners whether in federal, state or local level.

According to Town Planning Department, Subang Jaya Municipal Council (2019), lack of implementation of the green neighbourhood initiatives program by local authority in order to give an understanding and awareness of community for participation in the green neighbourhood initiatives program. Zulkifli, N. (2017) mentioned green neighbourhood is part of local agenda 21 activities and must be implemented by all Local Authorities in Malaysia. Local agenda 21 in Malaysia has been introduced since 1999 and nowadays, most of Local Authorities in Malaysia still in the process of implementation.

1.3 The Aim and Objectives

The aim of the exploratory study is to get data and identify the existing green neighbourhood initiative provision, affected urban living development area within Subang Jaya. The objectives of exploratory study are to identify the best location of a case study area, to refine the research question and to refine the best research approach in this study. This stage is the starting point for determining the appropriate area to be selected for carrying out this study.

After considering this preparation study the researcher will get a clear picture of what the next study should be. Exploratory study is crucial in determining which study should be studied for a clear and useful purpose

2 THEORETICAL BACKGROUND

Referring to PLAN Malaysia (2012), green neighbourhood initiatives guideline as guidance to developers and Local Authorities on the elements that should include in developing better urban living and sustainable city with green neighbourhood. It is initiatives include walkability and connectivity, creating a transit facility in the near distance, green network, mixed-use development, high density, neighbourhoods safe environment, application of green technology in building construction and infrastructure facilities, selection and planning of neighbourhood community networks. Work together with the Local Authorities with all the local community is the important way to success as mentioned

by Ismail, R. and Saat, S.A. (2004). The green plan and programs considered with various actions in order to implement green neighbourhood since this initiative was introduced in Malaysia. In this regard, an important approach is required at the council and city level to implement services that facilitate intermediation between the competing pressures for development of economic, protection of environment and a more benefits for society.

2.1 Malaysian Green Neighbourhood Development Action Plan

Ministry of Urban Wellbeing, Housing and Local Government (2012) mentioned there are ten (10) elements of The Green Neighbourhood Initiatives Action Plan. For the realisation and success of this Green Neighbourhood Development Action Plan requires strong stakeholder support, local authorities, developers, urban planners, engineers, landscapes, environmental officers, architects and related agencies in the public and private sectors is an instrument for the realization of the action plan.

According to Dahlia et al (2013), to assist Local Authoritiesand related agencies, the green neighbourhood guidelines and action plan have been taken to implement five (5) green neighbourhood initiatives selected as pedestrian paths, bicycle lanes, rainwater harvesting systems, compost waste and community garden. According to R.Ramli et al (2019), these five elements of the green neighbourhood are given priority by Local Authorityin Malaysia. These elements can be implemented by Local Authority for urban living residents with a quick time, easy and cheaper. These green neighbourhood element also can be practiced for all peoples every day because it does not take a long time and expensive cost to implement. Most of these green neighbourhood activities are the everyday practice of the community for example, go to work, gardening, storing rainwater system and making compost fertilizers.

3 METHODOLOGY

According to Igwenagu, C. (2016), the methodology is a theoretical and systematic analysis of the methods used to conduct a study. It includes theoretical analysis of the methods and principles related to the study. The methodology includes concepts such as paradigms, theoretical models, phases and techniques of obtaining data. Ishak, I.S. (2005) note that this methodology is a guideline for problem solving, with specific components such as methods and tools for planning and conducting projects. This study will be carried out in 4 main steps include aim, objective, collection of data, analysis of data, finding and discussion.

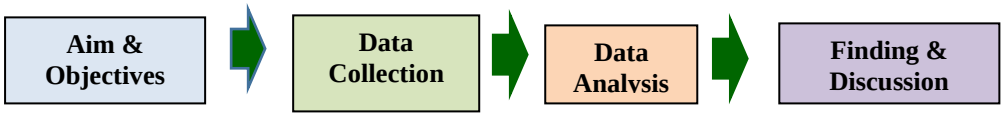

Figure 1 Methodological Framework For Exploratory Study
(Sources: Author 2019)

Figure 1 indicating the proses of research method which include aim, objectives, data collection, analysis, finding and discussion on the exploratory study for implementation of green neighbourhood initiatives in urban living. Although this exploratory study is a preliminary study for location determination, objective, refine research questions and research approach, it also has a process for conducting well-organized studies.

3.1 Data Collection

Collection of data was used three methods, including observation, interview and document review. Smith, Thorpe and Jackson (2012) describe various methods, including collecting data through observation methods, surveys and using existing secondary data. Collection of data using mixed method integrates both forms of data, various sources and uses different designs. The primary assumptions of this inquiry form are list of existing green neighbourhood initiatives and accurate information about the exploratory study for provision of green neighbourhood initiatives in Subang Jaya.

3.1.1 Interview

An interview session has been held to get the primary and secondary data of existing green neighbourhood initiative provision in Subang Jaya. To get the data of this initiative in Subang Jaya, researchers has been conducting interviews at MPSJ. Researcher have been interviewed by four departments related in green neighbourhood and involved in MPSJ which are senior officer of Town Planning, Engineering, Landscape, Building and Environment Management Departments. The qualitative method is to hold interview sessions, the basis of respondents about experience and those who manage green neighbourhood initiatives. Questions provided to respondents for data gathering related, location of green neighbourhood element provision, policies and guidelines, initiatives, implementation, issues and problems and programs conducted to resolve these issues. Samples used these 4 departments as they were involved in implementing these green neighbourhood initiatives at MPSJ.

3.1.2 Observation

This research used method of observation to get a true picture of the existing green neighbourhood initiative provision in Subang Jaya. There is a lot of green neighbourhood initiative in Subang Jaya. However, researcher chooses more on five green neighbourhood initiatives. According to Arumugan, V., Antony, J & Douglas, A. (2012), the researcher should have a framework in observation of structural which is starting with planning, pre-decide, it's all about what type of record and what to observe. Researcher has made an observation survey of the study area many times in January, February and Mac, 2019. Researcher need to make observations in order to see the validity of the implementation of these initiatives and to confirm the data obtained from related documents as well as from the interview officers at MPSJ. Researchers can also get detailed data even when it is not in the document list and interviews.

3.1.3 Review of Document

Researchers choose an approach of qualitative in this study because required the review of documents in the study. Review of document in the data obtained from the existing element of green neighbourhoods' provision, locations, planning, strategies, requirement and guidelines. The data that obtained from document review in MPSJ to get deeper knowledge of the green neighbourhood initiative provision in Subang Jaya and development surrounding. This research applies a method of data collection using a comprehensive study methodology to review the location of provision, the types of green neighbourhood elements, tools, action plans, programs and detailed information on the implementation of green neighborhood initiatives in MPSJ.

The information and data collected are through searches in annual report, magazines, web pages, books, articles, published journals and conference papers. Related document review of green neighbourhood initiatives are Subang Jaya Local Plan 2035, Subang Jaya Municipal Council Strategic Plan 2030, Subang Jaya Greenest City Action Plan 2030, Subang Jaya Sustainable City Action Plan 2019 -2014, MPSJ Annual Report, MPSJ Local Agenda 21 Report and MPSJ Green Neighbourhood Initiatives Report. The results of the review document can provide complete information and detailed references to produce a good review.

3.2 Analysis of Data

Referring to Dlan, N. M., & Kasim, R. (2012), analysis of data is very important for this study of exploration, from data analysis can determine either objective can be obtained or not. For this study, researchers use Analysis of Thematic. Analysis of Thematic involving the interviews' encoding, themes or phenomena and developed the categories then resulted them. Analysis of Thematic for this study is as follows :

Step 1 : Knowledge of Data

The researcher has good knowledge and very familiar with own data that got from interviewing by related officers in MPSJ with different department.

Step 2 : Generating Codes of Initial
The code of initial have to generate base on question being addressed to an officer of a releted department at MPSJ.

Step 3 : Searching for Type of Green Neighbourhood Initiatives Provision
The researcher choose the type of green neighbourhood initiative provision in Subang Jaya.

Step 4 : Reviewing Type of Green Neighbourhoods
Researcher review the data obtained and data classified to group need.

Step 5 : Producing the Report
The last step for thematic analysis is writing and producing the report from data analysis.

4 EXISTING GREEN NEIGHBOURHOOD INITIATIVES

4.1 Draft of Subang Jaya Local Plan 2035 (2019)

Based on the Draft of Subang Jaya Local Plan 2035 (2019), researcher focused on five elements of green neighbourhood initiative provision. According to Draft of Subang Jaya Local Plan 2035 have 7 main strategies which are :

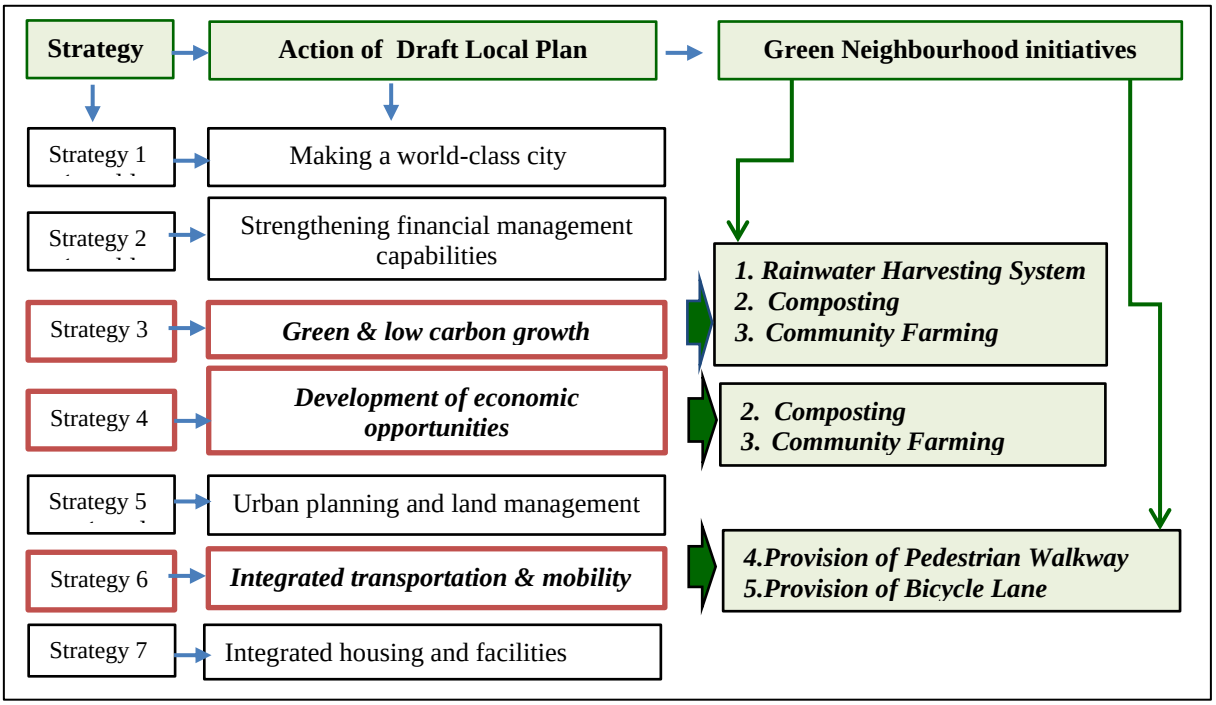

Figure 2 Strategies and Action Plan from Draft of Subang Jaya Local Plan, 2035
(Source: Draft of Subang Jaya Local Plan 2035, 2019)

Referring to the Draft of Subang Jaya Local Plan 2035 shows that the MPSJ has taken a strong interest in green neighbourhoods in undertaking municipal development. MPSJ has set four main strategies related to five elements of green neighbourhood initiatives are Green and Low Carbon Growth, Development of Economic Opportunities and Integrated Transportations and Mobility.

4.2 Five Green Neighbourhood Element in MPSJ

4.2.1 Provision of Pedestrian Walkway

Banerjee, A., & Maurya, A. K. (2016), mentioned pedestrians are the most vulnerable road users and are known for their wide choice of freedom while choosing a particular walking trend which makes them far more different from motorized users. Sidewalks and walkways are pedestrian facilities which are separated from motor vehicle traffic and are not designed for bicycles or other non-pedestrian users. These facilities accommodate the highest volumes of pedestrians and provide the best levels of service as pedestrians do not share the facilities with other modes traveling at higher speeds. Sidewalks are located in proximity and parallel to roadways while the walkways are located well away from the influence of automobile traffic and may be used to connect sidewalks. Similarly pedestrian walkways are also used to connect portions of transit stations and terminals. The LRT extension project is now completed.

The Kelana Jaya line extension passes through twelve new stations, including Subang Jaya and USJ before ending at Putra Heights. All stations would be supported by feeder bus services and future plans includes cycling lanes and a pedestrian walkway so that commuters can access the stations on foot and bicycle. MPSJ are divided into 7 planning block in Subang Jaya Local Plan : PB1 Subang Jaya-USJ, PB2 Subang Hi-Tech PB3 Putra Height, PB4 Kinrara, PB5 Puchong, PB6 Bandar Putra Permai and PB7 Seri Kembangan. List of pedestrian walkway in Subang Jaya as follows:

Table 1 List of Existing Pedestrian Walkway in MPSJ

PB1 Subang Jaya -USJ	PB2 Subang Hi - Tech	PB3 Putra Height	PB4 Kinrara	PB5 Puchong	PB6 Bandar Putra Permai	PB7 Seri Kembang
1. USJ 6 2. USJ 4 3. USJ 21 4. SS15 5. USJ 9 6. SS19 7. SS18 8. Bandar Sunway	1. Pinggiran USJ. 2. Perindustrian UEP. 3. USJ 3 4. Taman Batu Tiga 5. Metropark	1.Persiaran Bestari 2. USJ 25 3. Putra Point 4. Taman Putra Height. 5. Putra Kayangan	1. Bandar kinrara 2. Bandar Puchong Jaya.	1.Pusat Bandar Puchong Puchong Permai 3.Puchong Perdana 4. Taman Puchong Utama	1. Lestari Perdana. 2. Taman Puncak Jalil 3. Pusat Bandar Putra Permai. 4. Taman Desaminium.	1.Taman Seri Serdang 2.Mines City 3.Taman Universiti Indah. 4.UPM 5.Serdang Perdana
8	**5**	**5**	**2**	**4**	**4**	**5**

(Sources: MPSJ Town Planning Department, 2019)

Referring to Table 1 shows that the area with the most provision of pedestrian walkway is at PB1 Subang Jaya – USJ with 8 locations. While the smallest providing the pedestrian element is in PB4 Kinrara with only 2 locations. The awareness still low due to lack of implementing green neighbourhood initiatives by the Local Authority in Subang Jaya.

4.2.2 Provision of Bicycle Lane

According to Salleh, B. S., Ismail, Z (2018), bicycle lanes are an important element in the effort to provide protection and convenience to road users, including motor vehicles and bicycles. Bicycle lane project in MPSJ as part of the council's effort to encourage cycling. Cycling routes, bicycle racks, bicycle lane signage and facilities are provided in areas under MPSJ's administration, both by MPSJ and developers.

Existing green neighbourhood initiative provision is upgraded and enhanced to make them more user-friendly and to meet current needs. These green neighbourhood initiative's provisions are designed based on the Public Works Department (JKR)'s standards and adhere to the implementation guide for Crime Prevention through Environmental Design by PLANMalaysia, under the Town and Country Planning Department. MPSJ has made it compulsory for transit-oriented developments and high-density developments to provide bicycle lane. Facilities such as bicycle racks included as part of

the planning permission for the related development. MPSJ also promotes cycling through events of the community, such as Kayuhan Hidup Sihat MPSJ that is organised quarterly every year.

There are presently eight routes of cycling in areas under MPSJ's administration, List of bicycle lanes in Subang Jaya as follows:

1. Jalan Tujuan, USJ 4, Subang Jaya (2.4 km),
2. Putra Heights (15.46 km)
3. Batu Tiga (2.2 km)
4. Bandar Sunway
5. Sungai Kuyoh, Seri Kembangan (0.900 km)
6. Taman Sri Serdang (0.300 km)
7. Puchong Perdana, Puchong (2.4 km).
8. Taman University Indah (0.685 km)

The MPSJ will design more bicycle lanes using own funding and will also impose to developers with the approval of plans to develop this township. Application received by the MPSJ to develop the area especially in the neighborhood needs to provide a bicycle lane. The preparation of the bicycle lane is included in the Planning Permission application checklist.

Table 2 List of Existing Bicycle Lane in MPSJ

PB1Subang Jaya -USJ	PB2 Subang Hi- Tech	PB3 Putra Height	PB4 Kinrara	PB5 Puchong	PB6 Bandar Putra Permai	PB7 Seri Kembang
1. USJ 4 2. Bandar Sunway	1. Pinggiran USJ. 2. USJ 3 3. Taman Batu Tiga.	1. Persiaran Bestari 2. USJ 25 3. Putra Point 4. Putra Kayangan	1. Bandar kinrara 2. Bandar Puchong Jaya	1. Taman Puchong Utama	-	1.Taman Sri Serdang 2.Sg. Kuyuh 3.Taman Universiti Indah
2	**3**	**4**	**2**	**1**	**-**	**3**

(Sources: MPSJ Engineering Department, 2019*)*

Referring to table 2 shows that existing inventory for bicycle lane provision in Subang Jaya is still poor. The highest area of pedestrian access is in PB3 Putra Height with 4 locations, while in PB6 Bandar Putra Permai bicycle lane is not provided. Putra Height area is a new neighbourhood with residential, school, business and even Light Rail Transit stations. Bicycle lanes will provide the residents with a more complete and comfortable way of travel.

4.2.3 Rainwater Harvesting System (RWHS)

According to Hashim, N., Man, S., & Jani, Y. M. (2017), rainwater harvesting is a method of capturing the rainfall to meet water requirements in both urban and rural areas. Urban population growth and reduction of water reserved in Selangor has allowed the government to promote the rainwater harvesting system as an alternative resource among consumers. Harvested rainwater is a valuable resource providing numerous benefits.

Tavakol-davani, H. (2016) mentioned that RWHS can be considered as a feasible solution to mitigate impacts of future climate change on combined sewer overflow and supply water demand. Tanks of rainwater are typically applied at the household scale for non-potable water source uses, such as garden irrigation and toilet flushing as well as it could also be treated for potable use in urban and rural community's area.

According to Building Department of MPSJ (2019), every approved building plan must provide RWHS for residential, commercial and government buildings started from year 2012 until now. MPSJ through the Selangor Unified Building By-Laws 1986 (Amendment 2012) required the installation of RWHS in new developments such as single and twin residential, government, industrial, institutional

and commercial buildings with a roof area exceeding 100 square meters. MPSJ also implemented this RWHS in its own building at the expense of the state government as follows:

Table 3 List Existing MPSJ Building with RWHS

Item	Location of RWHS	Cost (RM)
1	Biomass Center, MPSJ, Bandar Bukit Puchong	20,000.00
2	Place Washing Vehicles in MPSJ Mechanical Workshop	7,000.00

(Sources: MPSJ Building Department, 2019)

The data show that MPSJ is also implementing this RWHS initiative in realizing the government target to be green cities and also towards sustainable cities.

4.2.4 Waste Composting

According to Sarkanen & Tillman (2013), biomass is the process of conversion of non-recyclable waste materials or organic materials into benefit able heat, electricity and fuel through several methods, including anaerobic digestion, combustion, pyrolization, gasification and landfill gas (LFG) recovery. This waste to process for energy is a transition from conventional energy systems to one based on renewable resources to meet the ever-increasing demand for energy and to address environmental concerns. Biomass can be interpreted as reuse of biodegradable organic material originating from organic living such as animals, plants and micro-organisms, including half of the municipal solid waste which comprises of food waste for the purpose of energy production.

Base on Kamaruddin, S. M., Sharif, M. and et el (2017), composting of waste projects covered under the MPSJ's biomass initiative are:

i. Green waste composting project.
ii. Food waste composting project.
iii. Vermicomposting project.
iv. Communal composting project.
v. Anaerobic digestion biogas project.
vi. Used cooking oil biodiesel project.
vii. Waste separation project.

There are three MPSJ's biomass facilities i.e. Integrated Biomass Centre, Bandar Bukit Puchong, Serdang Wet Market Anaerobic Digestion Biogas Plant and Serdang Wet Market Vermicomposting Centre. However, residents in all area practice for individual composting at home. According to MPSJ Environment Management Department deputy assistant director Hafiz Shariff, 37% of the waste we produce daily are organic and 46% are recyclable materials.

1. Green Waste Composting Project

Tree management is part of local council services with the scope of work maintaining the soft scape and hard scape elements. The local council's scope of work includes trimming trees which produce green waste as a residual. The conventional composting method treats green waste into bio-fertilizer compost and is simple, easy and cheap. Unfortunately, this manner will take a longer time (60-90 days) because it depends on natural degradation and require a large space.

Table 4 List of Green Waste Process in MPSJ

Year 2018	Green Waste Process (Kg)	Processed into bio-compost (Kg)
January	6,000.00	990.00
February	4,000.00	1,320.00
March	6,000.00	110.00
April	4,300.00	780.00
May	-	190.00
June	-	280.00
July	4,000.00	910.00
August	-	1,000.00
September	-	780.00
October	-	960.00
November	4,000.00	910.00
December	**7,000.00**	920.00
Total	**35,300.00**	**9,150.00**

(Sources: MPSJ Environment Management Department, 2019)

Data shows that in the year 2018, MPSJ processed about 35,300 kg of green waste and produced about 9,150 kg compost fertilizer. This indicates that the MPSJ is very active in implementing these green neighbourhood initiatives.

2. Food Waste Composting Project

MPSJ collected food waste under the Biomass Town Project from sources of various such as food a court and housing area then processed into bio-compost. In the urban area, household, commercial, industrial and institutional units produce organic wastes such as green waste, food waste and used cooking oil. A mechanical process, composting machine is used to process food waste into bio-fertilizer composts product.

Table 5 List of Food Waste Composting Project in MPSJ

Year 2018	Composting of Food Waste (Kg)	Processed into bio-compost (Kg)
January	615.00	430.50
February	950.00	665.00
March	95.00	66.50
April	210.00	147.00
May	-	-
June	-	-
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
Dicember	-	-
Total	**1,870.00**	**1,309.00**

(Sources: MPSJ Environment Management Department, 2019)

Data shows that in the year 2018, MPSJ processed about 1,870.00 kg of food waste and produced about 1,309.00 kg compost fertilizer. This indicates that the MPSJ is very active in implementing these the green neighbourhood initiatives.

3. Vermicomposting project

The residue of the dried leaves (area cleaning activity) is destroyed and composted using worms, information about this element of green neighbourhood initiative is as follows:

Table 6 List of Vermicomposting Project in MPSJ

Year 2018	Dried leaves (kg)	Vegetables (Kg)	Processed into bio-compost (Kg)
January	90.00	85.00	280.00
February	-	20.00	140.00
March	-	35.00	120.00
April	-	60.00	60.00
May	-	35.00	100.00
June	-	45.00	-
July	65.00	30.00	100.00
August	40.00	30.00	-
September	40.00	20.00	50.00
October	75.00	30.00	130.00
November	60.00	25.00	100.00
December	30.00	30.00	130.00
Total	**400.00**	**445.00**	**1,210.00**

(Sources: MPSJ Environment Management Department, 2019)

Data shows that in the year 2018, MPSJ produced about 1,210.00 kg composts fertilizer with dried leaves and vegetable waste. From the data also indicates that the MPSJ's efforts to implement green neighborhood initiatives are well received by the community.

4. Communal composting project

Home composting is a green activity and simple mini project of applying the concept of waste-to-wealth among the public. MPSJ encourage residents to run composting activities individually at their home by supplying free composting bin. With that, the public can separate organic waste individually and help minimize the waste generation by practicing home composting. According to Department of Environmental Management of MPSJ (2019), from the year 2010 until 2014, there are more than 750 residents willing to participate and practice composting. Residents in the MPSJ area can apply for a free recycling bin, MPSJ will provide free recycling bins to help residents adopt these green neighborhood initiatives.

5. Used cooking oil biodiesel project

Used cooking oil can be processed into biodiesel. This will save the environment from being contaminated by used oil residues. MPSJ has partnered with Fathopes Energy company to process used cooking oil for cooking food into biodiesel. Biodiesel equipment and processing equipment is located at the MPSJ Biomass Center in Bandar Bukit Puchong. The time it takes to process to convert this unused cooking oil to biodesel is approximately one day. To date, 122 municipal restaurants have agreed to participate in the program. The MPSJ also expects more participating premises including hotels and shopping complexes.

Table 7 List of Used Cooking Oil Biodiesel Project in MPSJ

Month	Year 2017	Year 2018
	Used Cooking Oil (Kg)	Used Cooking Oil (Kg)
January	87.00	47.20
February	40.00	13.50
March	28.00	110.00
April	-	90.00
May	-	170.70
June	23.50	340.50
July	8.50	113.50
August	-	157.50
September	112.00	49.50
October	3.00	6.50
November	44.00	30.00
Dicember	72.00	62.00
Total	**418.00**	**1,190.90**

(Sources: MPSJ Environment Management Department, 2019)

Data shows that in the year 2018, MPSJ processed about 1,190.90 kg and 418.00 kg in year 2017 into biodiesel. This will reduce environmental pollution and produce reusable products.

4.2.5 Community Farming

According to N Othman (2018), in Malaysia, urban farming is viewed as a catalyst towards achieving the well-being of urban dwellers and the natural environment. Urban farming is a strategy for Malaysia's food and economic security, and as one of the foci in the agricultural transformation whereby urban dwellers are encouraged to participate in this activity. Previous study proved that urban farming can help to address social problems of food security, urban poverty and high living cost, also provides leisure and recreation among urban dwellers.

Table 8 List of Existing Community Farming in MPSJ

PB1 Subang Jaya -USJ	PB2 Subang Hi-Tech	PB3 Putra Height	PB4 Kinrara	PB5 Puchong	PB6 Bandar Putra Permai	PB7 Seri Kembang
1. SS 19/1G 2. SS 17/2 3. USJ 6/6M 4. USJ 3/4P 5. USJ 2/2R 6. USJ 9 7. USJ 11/4 8. USJ 12 9. USJ 13 10. USJ 5 11. Recycle Centre USJ 1 12. USJ 14	-	1. Putra Harmoni 1/3C 2. Putra Bahagia 8/1D 3. Putra Height 6/1	1. Jln Mawar Kg Pasir 2. BK9 3. Jalan Tempua 4. Jalan Bandar 7 5. Pangsapuri Ceria Tmn Kinrara 6. Taman Perindustrian Puchong	1. Apartmen Garnet 2. Apatment Cengal 3. Puchong Permai Fasa 1C 4. Jalan BPU 5 5. Puchong Utama 6 6. Pangsapuri Bukit Puchong 7. Puchong Perdana.	1.Damai Utama	1. Jalan SR 8/6 2. Tmn Universiti Indah 3. Sg Kuyuh
12	**-**	**3**	**6**	**7**	**1**	**3**

(Sources: MPSJ Landscape Department, 2019)

Referring to Table 8 shows that existing inventory for community farming provision in Subang Jaya. The highest area of community farming is in PB1 Subang Jaya – USJ area with 12 locations, while in PB2 Subang Hi -Tech is not provided. Community garden activities are very popular in Subang Jaya area, especially at BP1 Subang Jaya- USJ, this shows the people in the Subang Jaya area are very committed and involved in making these initiatives successful.

5 CASE STUDY SELECTION

For this study, researcher decided to determine area for a case study of Subang Jaya using the Subang Jaya local plan. MPSJ has provided a high level of cooperation in implementing green neighbourhood initiatives towards sustainable development by forming a green action plan as a local government effort to support implementation of green neighbourhood initiatives. MPSJ have been implementing and practicing green cities by incorporating elements of green neighbourhood initiatives in their respective green action plans. The total population with an estimated of 798,830 people in year 2019 and the administrative area of MPSJ is 70.41 km2 (16,180 hectares). MPSJ close to Kuala Lumpur, Petaling Jaya, Klang and Shah Alam, linked with seven highways. The municipality has proven to be an attractive and prestigious location for residential, business and leisure. MPSJ has 7 planning blocks covering the Subang Jaya-USJ area, Subang Hi-Tech, Putra Height, Kinrara, Puchong, Bandar Putra Permai and Seri Kembangan.

The public transport system in MPSJ is growing and improves due to the opening of a light rail transit system (LRT) the second phase has been underway since 2015. LRT STAR and PUTRA ends at the Putra Height LRT terminal that provides its excellent accessibility to MPSJ area. Commuter trends from Port Klang to KL Sentral via MPSJ and stop at the Three New Commuter Station. In addition, the MRT will also be in within the MPSJ area. This presents a great opportunity for MPSJ strengthen its role in the development of Greater Kuala Kuala Lumpur.

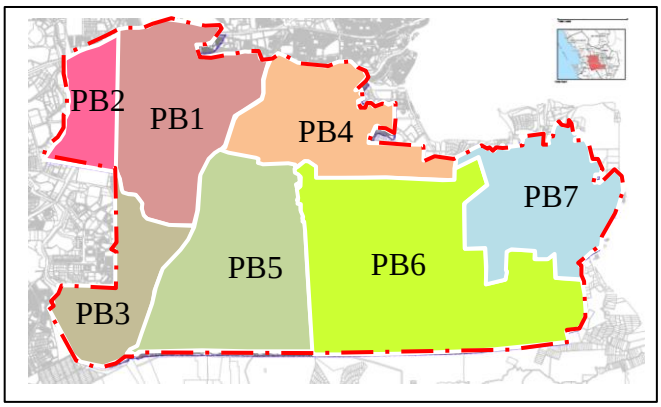

Figure 3 MPSJ have 7 Planning Block
(Source: MPSJ 2019)

For a detailed case study, it's divided into 4 main areas and all the findings of green neighbourhood initiatives identified in each section which, total area for study area within 1,598,589 square meters. (2,122.7 acres). Reflection Finding and conclusion of research had been made in this study.

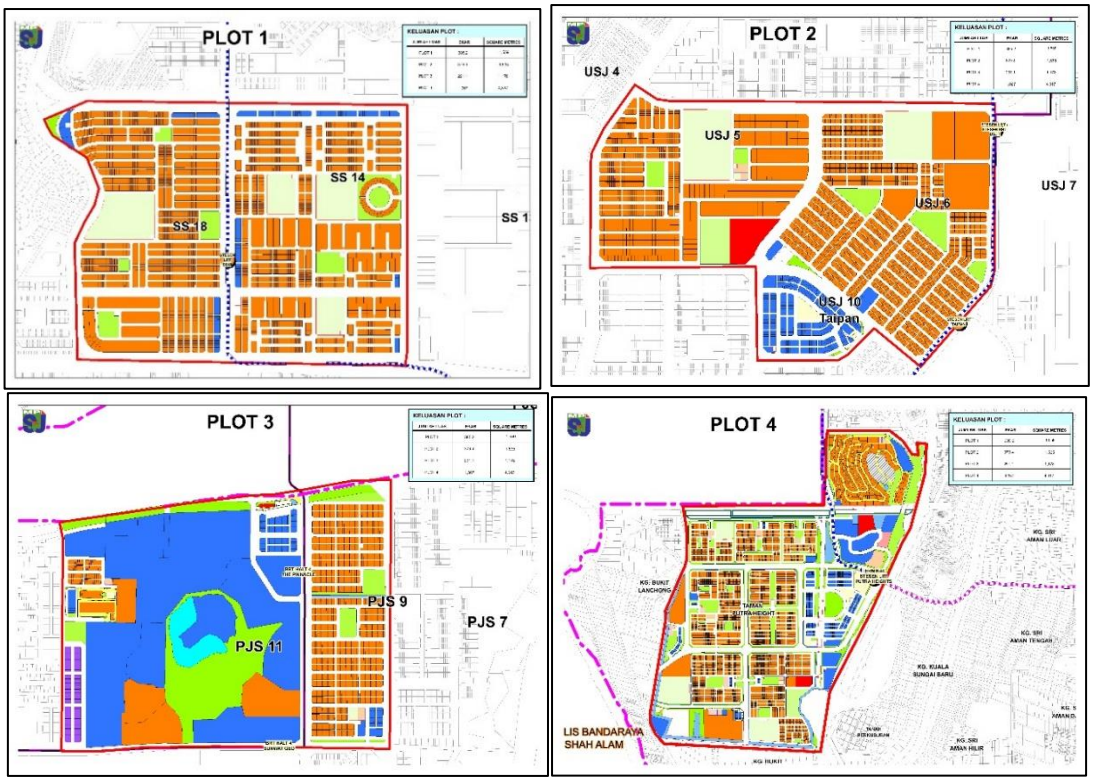

Figure 4. Map of 4 locations in Subang Jaya, Selangor
(Sources: MPSJ, 2019)

Figure 4 shown maps of Plot 1 SS14 and 18, Plot 2 USJ 5, 6 and 10, Plot 3 Bandar Sunway and Plot 4 Putra Height. Selection of 4 locations in plot 1, 2, 3 and 4 within MPSJ area through analysis of data obtained in this area provides an element of green neighbourhood. Selecting areas that have elements relevant to the purpose of the study is crucial to getting accurate and close results and results.

6 RESEARCH FINDING OF REFLECTION

Based on the exploratory study for the neighbourhood initiative provision in Subang Jaya, researcher find out that the existing main green neighbourhood initiatives can be categorized to five elements; pedestrian walkway, bicycle lane, rainwater harvesting system, waste composting and community farming. Data collection was used in three ways, including observations, interview & document review. Figure out there are five elements of green neighbourhood initiatives in Subang Jaya. Researchers decided to determine an area for a case study of Subang Jaya using MPSJ local Plan 2035. 4 main locations within a 3 km area selected for green neighbourhood in the urban living study.

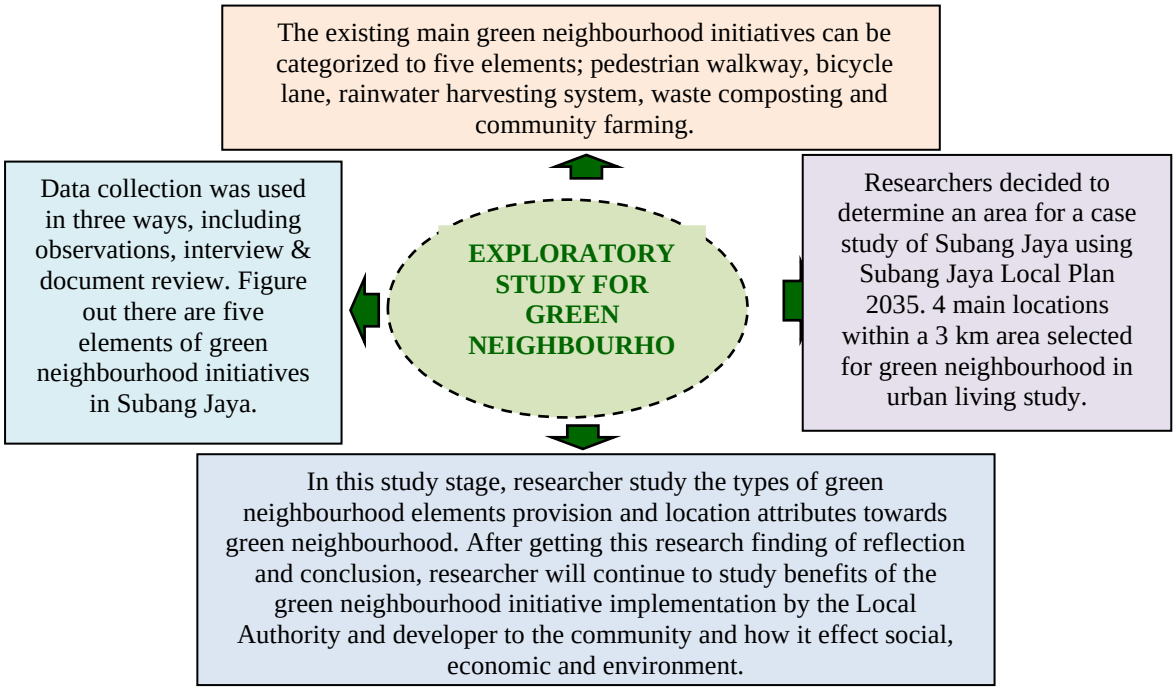

Figure 5 Research Finding for Exploratory Study
(Source: Author, 2019)

Figure 5 clearly shows the exploratory studies being conducted to determine the site location, the types of green neighbourhood provided in the study area. Exploratory study also can help researcher to refine the best objectives of research and refine the best research approach of choice in this study.

6.1 Determining Research Objective

Based on the exploratory studies done and the data obtained from three ways of data collection method can further strengthen the following best objectives:

1. First Research Objectives

To investigate the existing green neighbourhood initiative provision in the study area: The first objective researcher had done the field worked and made an observation to figure out the existing green neighbourhood initiatives in Subang Jaya. From the field worked, identified that existing green neighbourhood initiative provision can be categorized to three strategies which are:

a, Strategy 1: Integrated transportation and mobility
- *Provision of pedestrian walkway*
- *Provision of bicycle lane*

b. Strategy 2: Green & low carbon growth
- *Rainwater harvesting system*
- *Composting*
- *Community farming*

c. Strategy 3: Development of economic opportunities
- *Composting*
- *Community farming*

All the existing green neighbourhood initiative provision can be found in all planning block in Subang Jaya and BP 1 Subang Jaya- USJ and BP 2 Putra Height with 4 locations selected for the case study area is the research framework on refining the first objective.

6.1.2 Second Research Objective

To investigate the implication of locational attributes towards green neighbourhood initiative provision (integrated transportation and mobility, green & low carbon growth and development of economic opportunities) for the social (community), economy and environment in the study area.

For second objective researchers want to study the implication of green neighbourhood initiative provision by location on the benefit to social (community), economy and environment in Subang Jaya. For this objective, researcher want to figure out green neighbourhood elements that highlighted are among the factor that gave impact to social, economic and environment. To figure out the impact, residents' survey on satisfaction will be applied in the methodology of research, data, methodology and analysis chapter.

6.2 Research Finding of Approach

From the overall data and analysis, it is possible to conclude that this exploratory study will enable the research to continue. Clear data are obtained in terms of the location of the study, the number of initiatives provided, the objectives and approaches. After gaining this reflection and evidence, the researcher will continue the study to gain the views of the residents on the implementation of the green neighborhood initiative provision in urban living.

For this study, the aim of the study of exploratory is to get data and identify the existing green neighbourhood initiatives provision, affected urban living development area within Subang Jaya, identify the location of a case study area, refine the research question and research approach in this study. This stage is the starting point for determining the appropriate area to be selected for carrying out this study. After this stage, researcher will study the impact of implementation green neighbourhood initiative provision in urban living at Subang Jaya, Malaysia. 4 main areas and all the findings of green neighbourhood initiatives identified in each section. Case study adopted in this research work regarding the green neighbourhood initiatives that identified by researcher to investigate existing provision in Subang Jaya. Researcher narrows the study by choosing 5 elements from 10 of green neighbourhood initiatives. It is because of the observation made by researcher in this study area, these five actions to prioritized because it can have implemented with a quick and easy time and a less expensive.

7 CONCLUSIONS

The finding indicate that this study will enable the research to continue, This exploratory study having investigated existing green neighbourhood initiatives provision in Subang Jaya, identified the policy that implemented by Local Authority in order to provide green neighbourhood elements and determined the good potion of this case study area. Based on the data obtained from the interview, observation and documen review it can be concluded that the objective one and the second objective are appropriate to continue the study, refined the best objectives of research and refined the best research approach of choice in this study.

From this stage, it was also found the Local Authority in this study area had put several faundamental green neighbourhood initiatives towards sustainable urban living. After getting this conclusion from exploratory study, researcher will continue to study benefit from the implementation of the green neighbourhood initiative provision by the Local Authority and developer to the community and how it impact social, economic and environment.

Overall, the analysis and findings obtained can produce two main objectives of the study. The first objective is to investigate the existing green neighbourhood initiative provision in the study area. The second objective is to investigate the implication of locational attributes towards green neighbourhood initiative provision (integrated transportation and mobility, green & low carbon growth and development of economic opportunities) for the social (community), economy and environment in the study area.

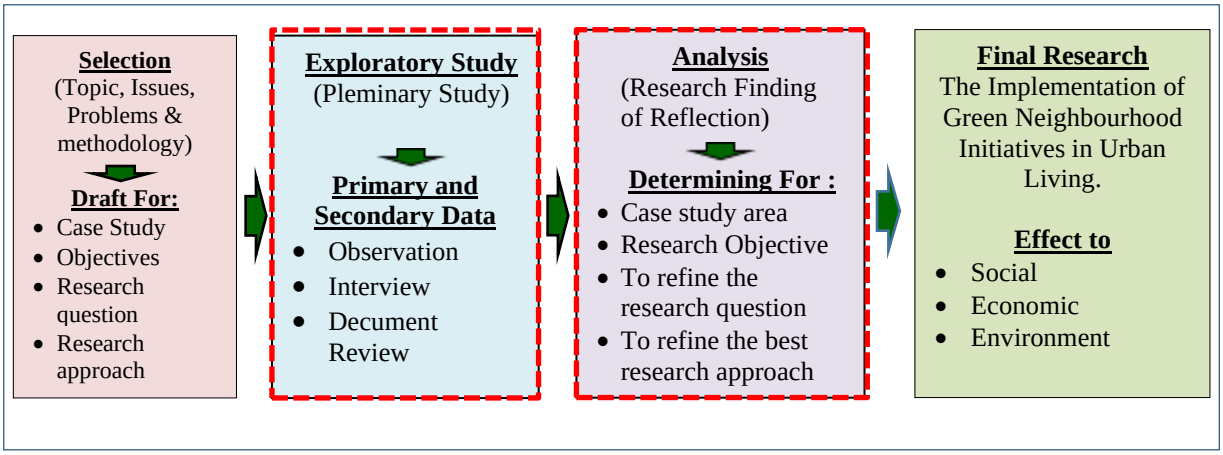

Figure 6 Framework of Proposed Final Research Using Exploratory Study
(Source: Author, 2019)

Referring Figure 6, as a conclusion, this study achieved the aim of the study is to get data and identify the existing green neighbourhood initiative provision, affected urban living development area within Subang Jaya. The objectives of exploratory study are to identify the best location of a case study area, to refine the research question and to refine the best research approach in this study. Therefore, good planning for green neighbourhood initiative provision is possible assist the council in resolve problems that arise. Hope the study suggestions have been made is said to be able to give inspiration, backup as well as good ideas inside management and administration of all agencies toward sustainable neighbourhood in urban living.

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