

INTEGRATED CITY CONCEPT IN JAKARTA CITY PLANNING

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ABSTRACT

This research was made as an initial step to develop the city of Jakarta into an integrated pilot city area. This is necessary because considering the many problems that must be faced towards sustainable urban development in Jakarta, including congestion, the need for clean water and waste management. Based on previous research on Jakarta's urban development assessed on sustainable urban and spatial planning, there is very little literature on Jakarta urban planning to achieve an integrated urban area. What is meant by a compact city here is an area that grows and develops as a center for collection, processing, distribution and service of a development area designed as a structured direction of development, both in terms of design, facilities and infrastructure, spatial policies, vehicle circulation patterns, arrangement of river channel, promenade and urban green pattern. The method used is a combination of data collection with a conceptual description consisting of field observations, topography and literature and policy evaluation with the limitations of this research problem on the concept of sustainable planning and policy evaluation in developing the city of Jakarta to become an integrated city. The results of this study are that an integrated city is a city that pays attention to and seeks benefits from its population density where the integrated city maintains the comfort of citizens in living their lives, the distance to places of shopping, work, school and others is short and comfortable even on foot. Apart from that, the integrated city also maintains the sustainability of its urban development in an ecological and democratic manner for all citizens. The conclusion of this study is that an integrated city can be said to be a concept that fits the needs of the city of Jakarta today because implementing an integrated city system can at least reduce the problems that exist in the city of Jakarta.

Keywords: Integrated City, Jakarta City, Sustainable Planning.

INTRODUCTION

This paper is part of the results of research conducted to explore the sustainability factors of Jakarta urban planning, in the study of sustainable urban planning in the city of Jakarta at the Master of Architecture Study Program at Indonesian Christian University (UKI).

The city area of Jakarta consists of cultural heritage areas, offices, trade and settlements, while the rest are rivers, parks and open spaces. Along with the increase in the population of the city of Jakarta, the problems in the development and urban planning of the area of Jakarta are increasingly complex.

This research is motivated by anxiety about the development and planning of the city of Jakarta which is felt to be carried out without a structured concept in the city master plan, especially in the long term, while the purpose of

this research is to complement the supporting literature for research in the city of Jakarta, especially in terms of sustainability of urban planning. from a random city to an integrated city as well as a comprehensive specification guide on the sustainability of urban planning.

The idea of an integrated city was originally a response to urban sprawl development, which is a concept that rejects the random city development that currently occurs in cities in Indonesia (especially Jakarta) which is identical to an ineffective lifestyle. in the use of energy, destroying the environment and not realizing a humane life, so it is feared for the sustainability of the city.

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This study aims to complement the literature on the city of Jakarta, especially in terms of the sustainability of urban planning. Efforts to make the city of Jakarta into a comprehensive integrated city as well as a solution/solution on the sustainability of urban planning with limitations on the concept of sustainable planning and evaluation of policies in the development of the city of Jakarta into an integrated city.

METHOD

The research method used is a combination method of data collection methods with conceptual description methods consisting of field observations, site, topography and evaluation of literature and policies. The activities carried out are the preparation of the basic plan, data inventory, analysis and evaluation as well as the recommendation or suggestion phase with the research location in the city of Jakarta.

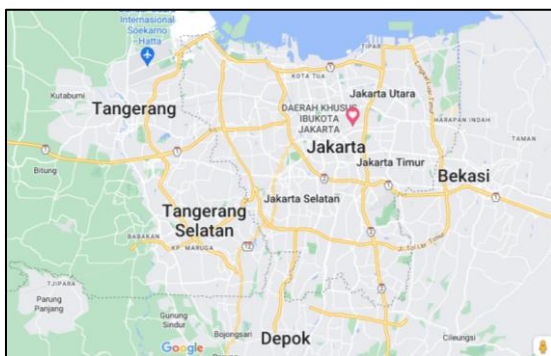


Figure 1. Jakarta City Map

Research Instruments

The research design used is a case study research design, which prioritizes field observations and historical processes as a way to explain causality and this research was carried out for approximately 4 (four) months starting from August to December to be precise in 2021 which includes preparation and implementation. The entire series of this research is located in the city of Jakarta and the TPA Bantar Gebang Bekasi area. The choice of the Bantar Gebang Bekasi TPA area was due to the fact that the final waste disposal site in that area was no longer suitable as a final disposal site (the piles of garbage had piled up).

The implementation in this study consisted of tracing the history of the Jakarta city master plan, collecting literature data, field visits. The field visit was carried out with a descriptive approach that focused on problems

in the city of Jakarta, namely the city's mass transportation, sanitation and waste systems and the provision of clean water. The stages of data analysis carried out are identification and analysis of the literature so as to obtain alternative designs (solutions). Another method is documentation to support the completeness of the data.

Research Implementation Procedure

The procedures for carrying out the research carried out are:

- a. Preparation of the basic plan.
- b. Literature data inventory.
- c. Analysis and evaluation.
- d. Recommendations and suggestions.

RESULT AND DISCUSSION

According to Aryanto & Gautama (2014), the initial planning of the city of Jakarta was heavily influenced by the ideal city theory, which is a city design concept that is structured with a specific and practical purpose, namely where the distance between the city center and the trade area and stations are close together, this can be seen from the arrangement of the location and function of the building.

The complexity of the changes and developments of the city of Jakarta can hardly be followed by structured urban planning (development planning is carried out randomly without thinking about the negative effects caused by the random development), where the population of Jakarta is growing every year, infrastructure development in Jakarta is increasingly chaotic and unsustainable. from the highway to the arrangement of high-rise buildings and the increasingly limited land area. Likewise, basic problems such as the availability of clean water, groundwater depletion and city traffic jams have always been problems which until now have not been resolved.

Basic Concepts and Sustainable City Planning

Along with the development of science about urban design, the framework of the relationship between the basic concepts and sustainable urban planning can be described as follows :

Based on the flow (**Figure 2**), the city master plan must have a basic concept consisting of an understanding of 4 (four) theories that cannot be separated (which are one

unit), namely the sustainable city theory, sustainable city design theory, city development theory and urban ecology theory used. for sustainable urban planning in tandem with sustainable urban spatial planning.

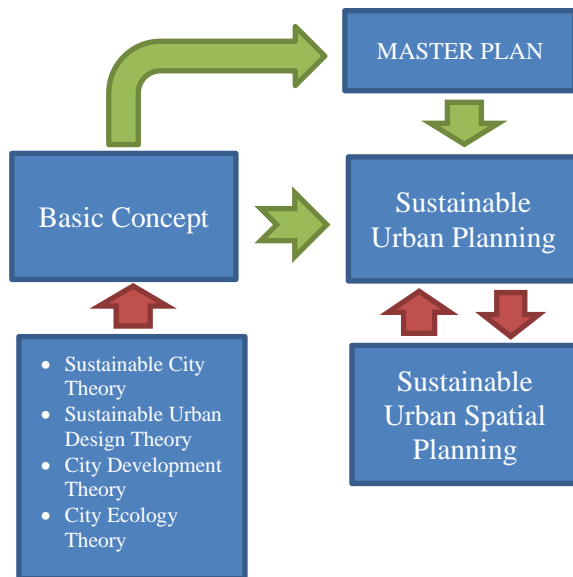


Figure 2. Flow of Relationships Between Basic Concepts With Sustainable Urban Planning

Current Jakarta City Sustainability Planning Concept

Ali Sadikin was the first governor to attempt to implement a grand plan called the Djakarta Master Plan in 1965 – 1985, but the master plan did not have a specific agenda for conservation other than a recommendation to build an old city center (the Special Capital Region of Jakarta 1967) and had limited knowledge. in sustainable urban planning.

Then came the idea in 2001 about improving city transportation services with the TransJakarta project until it officially operates since 2004 until now as a mode of mass transportation to support the capital's busy activities. Now Jakarta's steps to continue to build transportation infrastructure for its citizens are increasingly progressive by presenting the MRT and LRT.

In 2019, the Provincial Government of DKI Jakarta seeks to build roads intended for pedestrians and also change the pattern of city development into Transit Oriented Development (TOD) with the aim of developing evenly throughout the region.

Not to mention the development of toll roads in the city which are increasingly

widespread, based on Presidential Regulation no. 3 of 2016 concerning the Acceleration of the Implementation of PSN, there are 6 (six) construction of inner-city toll roads, namely:

1. Semanan – Sunter (20.2 Km).
2. Sunter – Pulogebang (9.4 Km).
3. Duri Pulo – Kampung Melayu (12.7 Km).
4. Kemayoran – Kampung Melayu (9.6 Km).
5. Ulujami – Tanah Abang (8.7 Km).
6. Sunday Market – Casablanca (9.2 Km).

This clearly exacerbates spatial planning in Jakarta where city planning has not been carried out properly, due to messy spatial planning, transportation finally follows the existing spatial layout. this is reinforced by every change of governor of Jakarta, the focus in urban planning is different, as if Jakarta does not have a master plan reference that regulates future urban planning. This requires a deeper understanding of the basic concepts in sustainable urban planning.

Basically the concept of sustainable planning for the city of Jakarta arises due to the following reasons:

1. The concept of need, occurs because humans need life from nature which is getting more and more damaged.
2. The concept of limitations, occurs because of the limitations possessed by nature that supply human needs so that the human population increases and human needs also increase.

Integrated City

The Compact City was originally conceived by mathematicians George Danzig and Thomas L. Saaty, who understood how to utilize existing resources. Their thoughts then become a source of inspiration for many designers when creating effective urban plans.

Prof. Dr-Ing. Ir. Uras Siahaan, lic.rer.reg (2021), an integrated city or compact city is a city that pays attention to and seeks benefits from population density where a compact city still maintains the comfort of citizens in living their lives, distance to shopping, work, school and others. others are short and comfortable even on foot. Apart from that, compact cities also maintain the sustainability of their urban development in an ecological and democratic way for all citizens.

Based on the description above, the concept of integrated city system theory is a design and urban planning concept that focuses

on developing high density for different uses on the same land to make land as efficient as possible.

The requirements for an integrated city (compact city) that must be met include:

- a. Completeness, does the city have everything, both transportation facilities, sanitation systems and city clean water systems.
- b. Compactness, does the city have well-integrated facilities (transportation, sanitation system and city clean water system)
- c. Conservation, where the city can maintain its historic buildings and is free from flooding and no damage.
- d. Comfort, the convenience of residents to live in the city.
- e. Coordination, there is good coordination between the city government and its residents.
- f. Collaboration, there is good cooperation between the city government and its residents.

The composition of the elements of facilities and infrastructure in an integrated city that must be fulfilled is as follows:

a) City Mass Transport System

The basic concept of mass transportation in an integrated city is the integrated type of mass transportation so that all corners of the city community can be well served. The ideal types of mass transportation for an integrated city are LRT (Light Rail Transit), MRT (Mass Rapid Transit), Busway and KRL (Train Commuter Line).

For the integration of mass transportation, it can be determined in TOD (Transit Oriented Development), where the further development of the area is oriented to transit points of various types of public transportation.

What is meant by TOD is a development that integrates the design of urban space to unite community activities, buildings and public spaces through easy connectivity by walking or cycling and close to good public transportation services to all corners of the city. TOD combines residential, retail/trade area, office, open space and public use in a walkable environment making it convenient for city dwellers to travel.

From the description above, it can be concluded that TOD has great potential to reduce car use, increase public transport passengers and foster a sense of togetherness in the surrounding environment. The success of TOD is largely driven by public policies that support this type of TOD development which is influenced by zoning, the main role of the government (central and local) and TOD operators as well as factors influenced by policies that contribute to the success of TOD.

b) City Sanitation and Waste System

Based on the regulation of the Governor of DKI Jakarta No. 122 of 2005, it is known that the wastewater management system still uses a conventional system (not yet using waste water treatment technology into clean water) and the role of PT. PAL Jaya in waste water management in Jakarta.

In an integrated city, wastewater treatment must be able to be recycled into clean water so that it can preserve groundwater. As for the processing of solid waste (garbage) it can be processed into an alternative energy source, so that the problem of high volume of waste can be overcome.

The basic concept of sanitation and waste systems in an integrated city is divided into 2, namely:

1. Liquid waste treatment.
2. Treatment of solid waste (garbage).

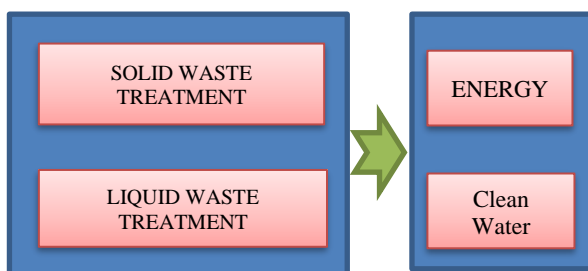


Figure 3. System Integration Sanitation and City Waste in Integrated City Concept

c) City Clean Water Availability System

This section describes the analysis and results of the original study or project. Discussion between the research results obtained with the theory, rules and references used through dialogue is highly recommended to obtain new results.

In terms of the availability of clean water in the city, the government (central and regional) has set the following regulations:

1. Regulation of the Governor of DKI Jakarta No. 16 of 2020 concerning procedures for connecting and using drinking water.
2. Law of the Republic of Indonesia No. 17 of 2019 concerning water resources.
3. Government Regulation of the Republic of Indonesia No. 82 of 2001 concerning water quality management and water pollution control.
4. Government Regulation of the Republic of Indonesia No. 121 of 2015 concerning the exploitation of water resources.
5. Government Regulation of the Republic of Indonesia No. 122 of 2015 concerning the drinking water supply system.
6. Regulation of the President of the Republic of Indonesia No. 10 of 2017 on the water resources council.
7. Regulation of the Minister of PUPR No. 19/PRT/M/2016 concerning the provision of support from the central government and or local governments in cooperation in the implementation of the drinking water supply system.
8. Regulation of the Minister of PUPR No. 27/PRT/M/2016 concerning the implementation of the drinking water supply system.

above, it is known that the city's clean water supply system still relies on ground water. While in the concept of an integrated city, the availability of raw materials for city clean water can be obtained by:

1. Liquid waste treatment.
2. Reservoir/situ/river inside and outside the city.
3. Springs.
4. Seawater distillation.

The reservoirs that can be used as raw materials for clean water are:

- a. Pluit Reservoir with an area of 3.9 Ha.
- b. Muara Angke Reservoir with an area of 0.8 Ha.
- c. North Sunter Reservoir with an area of 4.6 Ha.
- d. Kamal Pegadungan Reservoir with an area of 3.9 Ha.
- e. Marunda Reservoir with an area of 6 Ha.
- f. Rawa Rorotan Reservoir with an area of 2.9 Ha.
- g. Ulujami Reservoir with an area of 5.9 Ha.
- h. Dukuh Village Reservoir with an area of 5.7 Ha.
- i. Ceger Reservoir with an area of 3.6 Ha.
- j. Setiabudi Reservoir with an area of 4 Ha.

Referring to the government regulations governing the availability of city clean water

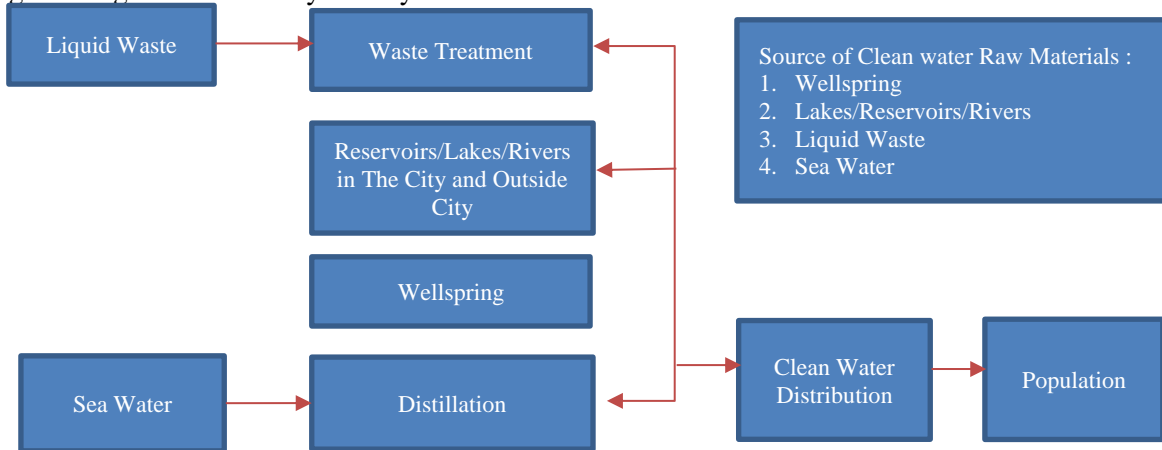


Figure 4. System Integration Sanitation and City Waste in Integrated City Concept

CONCLUSION

- a. The concept of sustainable planning for the city of Jakarta to become an integrated city is that facilities and infrastructure must be well integrated which consists of 3 (three) basic elements, namely the city's mass transportation system, sanitation & waste system and clean water system.
- b. In urban planning, there are 5 (five) basic concepts that become references in sustainable urban planning and these basic concepts are an inseparable unit, namely sustainable city theory, sustainable city design theory, city development theory, city ecology theory and urban planning theory.
- c. The concept of the Integrated City (Compact City) can be considered as a

concept that fits the needs of the city of Jakarta today.

- d. The basic concept of a mass transportation system in an integrated city is the integrated type of mass transportation so that all corners of the city community can be well served on the basis of TOD (Transit Oriented Development). The recommended types of mass transportation include LRT (Light Rail Transit), MRT (Mass Rapid Transit), Busway and KRL (Train Commuter Line).
- e. The basic concept of a sanitation and waste system in an integrated city is the processing of liquid waste into raw materials for clean water and processing of waste into energy sources.
- f. The basic concept of providing clean water raw materials does not rely on groundwater, but the availability of clean water raw materials is obtained from wastewater treatment, reservoirs/situ/rivers located within the city or outside the city, springs and seawater distillation.
- g. Local governments need to implement a city sustainable development plan program every 5 (five) years based on a city master plan which is updated regularly every 25 (twenty five) years in the context of sustainable urban planning towards an integrated city.
- h. Local governments need to update/review regularly every 5 (five) years on regional regulations on city spatial planning and land function planning, mass transportation systems, clean water management and municipal waste management issues.
- i. It is necessary to make regulations that are legally binding on sustainable development based on the principles of green building and green urban.
- j. There needs to be a commitment from the local government to innovate in terms of efficient waste management/management (eg turning waste into an energy source or as raw material for clean water).
- k. In implementing the concept of an integrated city in the city of Jakarta, a city plan can be made in stages per city area so that the concept of an integrated city can be realized.

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