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Analysis of The Need for Green Open Space in North Jakarta

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***Abstract**: Green open space is part of the urban area in spatial planning that functions as a green area of urban parks, urban forests, urban green areas, urban activities, cemetery green areas, green lanes and also house yards. With the condition of increasing population growth, this causes the need for green open land to also increase. There are 2 parameters that will be discussed in this study, namely the need for green open space following the regional spatial planning regulations regulated in Law no. 26 of 2007 concerning the need for spatial planning, which must meet a minimum of 30% of the city area, the availability of green open space in North Jakarta is 456.18 hectares according to the DKI Jakarta Park Service with an area of North Jakarta of 14000 hectares so that only 3 green open spaces are found. ,26% is still far from the green open space requirements needed in North Jakarta in accordance with what has been determined. Meanwhile, according to data from the DKI Jakarta Central Statistics Agency in 2020 that the population of North Jakarta reached 1,844,462 people based on the population of North Jakarta in 2020 it should have an area of green open space of 3688 ha. But in reality what is happening at this time the existence of green open space is only 456.18 ha.*

***Keyword**: green open space, open space, urban parks*

Introduction

The city of Jakarta is currently one of the cities with the largest population in Southeast Asia and is also experiencing environmental degradation processes such as floods, garbage, bad air pollution. The population problem that is currently happening in the city of Jakarta is basically because the population is too large compared to the regional capacity and services that the city can provide (Center for Environmental Management, 2008).

The large population of the city of Jakarta is caused by the high flow of urbanization originating from areas outside Jakarta. Until now, the population of Jakarta has reached 10,467,630 people with a population density of 15,804 people/km² (Central Bureau of Statistics, 2018) of course there has been an increase in the number of residents during the day due to immigrants from commuter areas such as Tangerang, Bekasi, Bogor and Depok.

North Jakarta is part of the DKI Jakarta Province which is also experiencing regional development. The continued increase in development and development in the North Jakarta area has an impact on the high dynamics that occur in land use. North Jakarta has a population of 1.7 million (Central Statistics Agency: 2020) of which 17.17% of the population of DKI Jakarta province is located in North Jakarta City and has experienced an average growth of 1.02% per year in the last 3 years. If this continues, it is projected that by 2030 it could reach 2 million people. The high rate of urbanization in Jakarta so far has a population density of 11,440 people/km2. North Jakarta is the administrative part of the DKI Jakarta Province which is included in the bottom 3 which has a population that enters DKI Jakarta. As of 2020, there are

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1,189 residents who enter DKI Jakarta who live in North Jakarta. Meanwhile, the sub-district that has the most immigrants is the Cilincing sub-district with 317 people.With the condition of the population in North Jakarta, the need for land increases, including the need for green open space which is one of the factors for the comfort of living things. Green Open Space is part of the open spaces of an urban area filled with plants, plants and vegetation (endemic, introduced) which functions to support direct and indirect benefits, which are obtained from green open spaces in the city, which include security, comfort, well-being, freshness and beauty of the urban area.

Table 1. Percentage of Park Area by Type and City/District. Administration, 2020

Cities	**Area**	**Cities**
	GOS (Ha)	**Large (Ha)**
Kep. Seribu	4,50	Kep. Seribu
Jakarta Selatan	629,11	Jakarta Selatan
Jakarta Timur	597,99	Jakarta Timur
Jakarta Pusat	542,29	Jakarta Pusat
Jakarta Barat	518,74	Jakarta Barat
Jakarta Utara	456,18	Jakarta Utara
Total	2748,81	**Total**

Source: DKI Jakarta Provincial Forestry Service

According to the table data above, North Jakarta has the narrowest green open space, this is the background in this study so that it can be identified regarding the phenomenon of the existence of green open space. So it can be identified several problems in the study which according to data on population growth in Jakarta in the period from 2011 to 2020 whether they have an influence on changes in the existence of green open spaces in Jakarta.

North Jakarta is a city that has centers of activities such as industry, settlements and public spaces that can be enjoyed by the general public. However, North Jakarta itself has the lowest green open land area compared to other urban areas in Jakarta. This of course causes a decline in environmental quality in North Jakarta City.

The problem of management of green spaces is exacerbated by rare availability of relevant data in municipalities (Kuklina, 2020) . So the issue of limited green open space in North Jakarta is the phenomenon behind this research. The background of this research are as follows:

a. How is the availability of green open space in North Jakarta.
b. How is the need for green open space based on government regulations and the population of North Jakarta City.
c. How is the need for green open space in the projected population growth for the next 20 years.

Urbanization has resulted in many drastic changes in the world in the sustainability of the urban environment and for the surrounding area. In the 2010-2050 region, according to United Nations data, there has been an increase in urbanization starting from 51.50% - 67.2% with this condition being able to consume 75% of the natural resources on earth.

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The purpose of this study is to estimate the area of green open space needed in North Jakarta based on 3 measurements that will be used, namely area area, population and projected needs in 2020 along with the increase in population.

Methodology

1. Data collection

The data used in this study uses secondary data which includes biophysical data, namely area data, population data and projected population data in 2040. While the data used in this study comes from the North Jakarta Central Statistics Agency and the North Jakarta Park Service.

2. Data Analysis

The analysis is carried out in calculating the need for green space by using three parameters that refer to the regulations set by the government. In the use of several parameters such as:

a. The need for green open space is based on the area.
b. The need for green open space based on population
c. The need for green open space in urban areas should follow the regional spatial planning regulations regulated in Law no. 26 of 2007 concerning the need for spatial planning, which must be sufficient at least 30% of the area of the city.

With the total area consisting of 20% Public Green Open Space and 10% Private Green Open Space. The form of open space in question includes according to Article 1 point 31 of Law no. 26 of 2007 concerning Spatial Planning explains that green open space is an elongated or grouped area, in its use it is more open where plants grow, both those that grow naturally or intentionally planted. Meanwhile, in the regulation of the Minister of Public Works: Number: 05/PRT/M/2008 open space is space within a city or wider area, both in the form of an area/region or in a form that has an elongated area or path where its use is more extensive. is open without any buildings.

In determining the area of green open space based on the population based on the Minister of Public Works Regulation No. 5/PRT/M/2008 are as follows:

K = L x 30/100

Information :

K = Availability of green open space

L = Area

In determining the area of green open space based on the number of residents, it can be done with the rule of 20 m² per capita. The need for green open space is based on population by multiplying the number of residents by the standard area of green open space per capita in accordance with applicable regulations with the condition of population growth in North Jakarta from year to year continues to increase.

GOS pi = Pi x k

Information :

K = Value of provision for green open space per population

Pi = Total population in a certain area

C. RESULT

Based on the Regulation of the Minister of Public Works Number 05/PRT/M/2008 that the availability of green open space must reach a minimum of 30% of the urban area. So that the 30%

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proportion is divided into 20% green open space provided by the government and 10% private green open space.

The availability of green open space in North Jakarta is 456.18 Ha according to the DKI Jakarta Park Service with an area of 14000 Ha in North Jakarta so that the need for green open space can be generated using the above formula:

K = L x 30/100
K = 14000 x 30/ 100
K = 3.26%

Based on the results of the data above, it is shown that the percentage of 3.26% is still far from the green open space required in North Jakarta in accordance with the Minister of Public Works Regulation No. 5/PRT/M/2008 of 20% which must be provided by the government. Based on the regulation of the Ministry of Public Works No. 05/PRT/M/2008 it has been determined that the need for green open space has been set at 20 m²/resident.

According to data from the DKI Jakarta Central Statistics Agency in 2020 that the population of North Jakarta reached 1,844,462 people with calculations in determining the need for green open space based on the number of residents it can be calculated by;

GOS pi = Pi x k
GOS pi = 1,844,462 x 20 m²
= 36,889,240 m²

With the calculation above, it can be seen that the need for green open space based on the population of North Jakarta in 2020 should have an area of 3688 ha of green open space. But in reality what is happening at this time the existence of green open space is only 456.18 ha. This situation is certainly still far from being expected to meet the needs of open space in North Jakarta.

In determining the need for green open space in the next 20 years. The first step is to calculate the projected population of North Jakarta in the next 20 years. By using the following formula:

Pn = Po (1+r)〗^n

Information :

Pn = Number of population in year n
Po = Number of population base year
r = Population growth rate
n = Number of intervals

after the calculation of the results of population projections in the next 20 years. The next step is to calculate the projected need for Green Open Space in North Jakarta with the formula:

GOS pi = Pi x k

Information :

K = value of the provision of green open space per resident
Pi = Total population in area

C. RESULT

Based on the Regulation of the Minister of Public Works Number 05/PRT/M/2008 that the availability of green open space must reach a minimum of 30% of the urban area. So that the 30% proportion is divided into 20% green open space provided by the government and 10% private green open space.

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after the calculation of the results of population projections in the next 20 years. The next step is to calculate the projected need for Green Open Space in North Jakarta with the formula:

GOS pi = Pi x k

Information :

K = value of the provision of green open space per resident

Pi = Total population in area

By taking population growth in 2020 by 1.01%, the calculation of projections in the next 20 years can be calculated by;

Pn = 1,844,462 x (1+0.0101)〗^20

= 2,256,602

Meanwhile, the need for green open space needed in the next 20 years projection with a population of 2,256,602 can be calculated as follows;

GOS pi = 2,256,602 x 20 m²

= 4513,2 Ha

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With result that can be seen that outside the green open space in the 20-year projection and with the condition of North Jakarta's population of 2,256,602 people, open space is needed based on the population, which is 4513,2 Ha or about 32% of the total area of North Jakarta. If this can be met, then the regulations regarding the need for green open spaces in the City can be fulfilled.

Conclusion

Based on the research that has been done, it can be concluded that the availability of green open space in North Jakarta is still far from the proper needs according to the Minister of Public Works Regulation Number 05/PRT/M/2008 that the availability of green open space must reach a minimum of 30% of the urban area. So that the 30% proportion is divided into 20% green open space provided by the government and 10% private green open space and based on the population in North Jakarta City.

This is certainly a problem that is not easily solved by the government. Given the large number of government residents accompanied by very limited land.

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