


## Land Utilization as Green Open Space and City Park as Public Space in Lima Puluh District, Batu Bara Regency, North Sumatra Province

Tavy Juanda<sup>1</sup>, Abdi Sugiarto<sup>2</sup>, Cut Nuraini<sup>3</sup>  
University Of Pembangunan Panca Budi

### ABSTRACT

This study aims to examine Land Utilization as Green Open Space and City Park as Public Space in Lima Puluh District, Batu Bara Regency, North Sumatra Province. This study uses a qualitative descriptive method that emphasizes on the aspect of natural object conditions. Data collection techniques are the means used to obtain the data and information needed to achieve research objectives. In this case, the researcher conducted several data analysis techniques, data reduction, data presentation and preliminary conclusion. The results of the research on land use in Limapuluh District have 2 areas, namely the built land area and the unbuilt land area. The land use area in Limapuluh District is 99.1 hectares which is dominated by unbuilt land areas. To be able to meet the needs of public RTH land in each sub-district in Limapuluh District, at least 1 public RTH in 1 sub-district and optimization of existing vacant lands to be converted into public RTH, especially on vacant land in sub-districts that have little availability of vacant land. Meanwhile, the suggestion for the community to take advantage of vacant land by creating a garden in the yard of the house and maintaining and maintaining public RTH facilities that have been built by the government so as to realize a high and comfortable quality of living environment.

**Keyword : Land Use, Green Open Space, City Park and Public Space**

 This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

#### Corresponding Author:

Name, Abdi Sugiartio  
Master of Urban and Regional Planning  
Universitas Pembangunan Panca Budi  
Jl. Gatot Subroto No.km, 4,5 Sumatera Utara 20122  
Email : abdi\_sugiarto@dosen.pancabudi.ac.id

#### Article history:

Received Jan 21, 2025  
Revised Jan 28, 2025  
Accepted Feb 05, 2025

### 1. INTRODUCTION

Green open space is an elongated/path and/or grouped area whose use is more open, a place where plants grow, both those that grow naturally and those that are deliberately planted (Permen PU, No. 5 of 2008). The Regulation of the Minister of Public Works in 2008 states that the quantity and quality of public open spaces, especially green open spaces (RTH), are currently experiencing a very significant decline and resulting in a decline in the quality of the urban environment which has an impact on various aspects of urban life, including frequent floods, increased air pollution and a decrease in community productivity due to limited space available for social interaction (Ministry of Public Works, 2008). The mapping of green open spaces can be done directly or indirectly. Indirect RTH mapping is carried out using a GIS-based remote sensing method (Geographic Information System), while direct mapping is carried out by field surveys (Prakoso & Safitri, 2021).

Lima Puluh District is one of the areas in the Batu Bara Regency area. Lima Puluh District continues to improve, in addition to being equipped with various public facilities and green open spaces (RTH), it will also be used as a pilot as a green city (Rahma & Supriyanti, 2018). City Park is one of the manifestations of the city's open space which is very important as one of the public facilities which is also part of the green open space. Apart from being a green open space, urban parks have many functions related to hydrological, health, aesthetic, ecological, social and recreational functions. As the element of the city 2 functions as a means of recreation, the activities carried out in the city park include activities that can improve physical and mental conditions and refresh the mind. City parks are public spaces located in urban environments that can be used as cheap and friendly means of citizen recreation and have many benefits to anticipate the negative impacts caused by urban development, besides that this city park can be enjoyed by all circles of society and plays a strong role as a symbol of community socialization. Green open spaces in urban areas have important functions in the socio-cultural, ecological, and aesthetic fields. A land can be said to be an ideal open public space if it meets the qualification standards for green open space requirements. The qualifications for ideal public space

criteria such as locations that are easy to reach, comfortable, and provide a sense of security for their users (Aguila et al., 2019).

The existence of RTH in urban areas is often ignored because it is considered not to provide direct economic benefits and as a result, the area of RTH is decreasing. The reduction in RTH occurs due to the increase in land demand in line with the increase in community welfare and population growth. Population growth that increases from time to time will have implications for high pressure on land use so that it needs special attention, especially related to the provision of space for settlements, public and social facilities as well as public spaces in urban areas. Lima Puluh District is one of the sub-districts in Batu Bara Regency which is currently growing rapidly. The location of Lima Puluh District is at the transportation node of the East Sumatra cross-route. As a center of regional activities, Lima Puluh District functions as a center of government, education, trade and industry (Paulina, et al., 2005). The development of Lima Puluh District is inevitable. The district government's policy regarding the direction of district development needs to be accompanied by the enforcement of regulations. The development of the sub-district continues to increase in line with the increasing population and the need for facilities and infrastructure. The development of Lima Puluh Districts can cause the quality of green open space to decline and far from the minimum standards of a comfortable city.

Limapuluh District is one of the areas included in the center of Batu Bara Regency with an area of 4.04 Ha. According to data from the Central Statistics Agency of Limapuluh District in 2022, the population reached 43,461 people with a population density of 10,758 people/km<sup>2</sup>. The high density in the area also increases the community's need for city facilities and infrastructure. Limapuluh District is one of the sub-districts that has a high density of settlements (Draft RTRW 2020-2040). This high population makes it possible for the demand for space needs to be higher. The high demand for space can threaten the availability of existing public RTH land and result in a decrease in environmental quality. Based on the results of the interview of the Limapuluh Sub-district Head, "the existence of public green open space in Limapuluh District before it was completely evenly distributed in each village, Limapuluh District for the Limapuluh District environmental park did not have it. This is due to the limited land owned by the government for the construction of public RTH". In addition, based on the results of field observations, the existence of public green open spaces in Limapuluh District is not evenly distributed to all villages in Limapuluh District. The type of public RTH in Limapuluh District is in the form of 4 sports fields. The lack of availability of public RTH results in a decrease in the quality of a comfortable environment and the community has limited places to socialize with the surrounding environment.

However, it is impossible for the government to build a public RTH at the same time with the limited land owned by the government. Therefore, it is necessary to determine which sub-district priority areas will be the provision of public RTH in Limapuluh District based on the level of fulfillment of the percentage of sub-districts. The provision of public RTH is very important to improve the quality of the environment and comfort in urban areas to realize high and comfortable environmental quality. The lack of green open land in the Limapuluh District area makes the level of air pollution unhealthy, so the existence of this green open space is very necessary to harmonize the quality of the environment. In addition to being able to neutralize air pollution (Pratama et al., 2021), green open spaces can also reduce noise and visual control such as minimizing the reflection of sunlight before reaching settlements. Green open spaces can also be a forum for interacting with each other to increase relationships between communities, so that communities engaged in art, sports, or culinary centers can be formed. In addition to attaching importance to its function, green open spaces must also consider designs that create a safe and comfortable impression and have aesthetic value so that they are more comfortable to occupy temporarily.

The existence of this City Park is very beneficial for the survival of humans or society to carry out all activities while controlling the comfort of the climate and the aesthetic harmony of the city. Cities have an obligation to have City Parks. If the City Park is not owned by a city, it means that the city concerned has violated the existing rules, namely in the provisions of Law No. 26 of 2007 concerning Spatial Planning and Permendagri Number 1 of 2007 concerning the Arrangement of Green Open Space in Urban Areas. Based on Law No. 26 of 2007 concerning Spatial Planning, the area of RTH that must be provided by each city or district is at least 30% of the total area of the city or district, consisting of 20% public/public RTH and 10% private/private/individual RTH (in Hakim, 2016). However, over time, Taman Kota as one of the RTH areas has actually shrunk because it is pushed by the construction of buildings so it is feared that it will be able to interfere with the process of water infiltration into the ground. Therefore, the existence of the City Park is very important to anticipate the impacts caused by the development of the city and can be enjoyed by all city residents. City Park as a form of social facility

managed by the city government is a public facility that must be provided by the city government. Taman Kota can be accessed by all residents without any charge. The provision of social facilities in the form of parks is a policy from the government on concern for the environment. Awareness of the importance of a beautiful environment and parks as the lungs of the city and recreational facilities, is realized through operational policies in the form of city parks (Adi, 2008 in Etiningsih, 2016: 4). One example of a local government that manages City Parks is the Batu Bara Regency Government which is located in the Lima Puluh District area.

## 2. LITERATURE REVIEW

### Green Open Space

According to Law Number 26 of 2007 concerning Spatial Planning, what is meant by Green Open Space (RTH) is an elongated area or path or grouping whose use is more open, a place where plants grow, both those that grow naturally and those that are deliberately planted. A green open space is an open space whose area is dominated by vegetation, be it trees, shrubs, grasses, and other ground cover vegetation. This area was established based on the needs and allocations within the area (Khambali, 2017). Not only to maintain and balance the conditions of the environment or the surrounding ecosystem, but also to provide a place to carry out social activities that combine with natural aesthetics. Based on the Regulation of the Minister of Public Works Number 05/PRT/M/2008 concerning Guidelines for the Provision and Utilization of Green Open Space in Urban Areas, the definition of green open space is an elongated/pathed or grouped space whose use is more open, a place where plants grow, both those that grow naturally and those that are deliberately planted.

### City Park

City parks are open land that functions socially and aesthetically as a means of recreational, educational or other activities at the city level. Urban parks are intended to serve the inhabitants of a single city or part of the city area, (De La Barrera & Henríquez, 2017). Various values and meanings are contained by city parks, so that city parks are assets for a city. As an asset, a city park has a spirit, harmony with its environment, and emotional bond with the city itself, so that it represents the glory and character of a city as a form of thought and work of city planners and designers of its time, and can be a vitality and generator for its area, (Mexia et al., 2018). In the Indonesian Law No. 26 of 2007 concerning Spatial Planning, it is explained that in the implementation of spatial planning, attention must be paid to various aspects, including cultural values contained in historical areas. A historical area is an area that is considered a cultural heritage environment, because the entire area has certain characteristics that make it special and worthy of preservation, although individually, the buildings in the area do not have the quality to become landmarks (Barnet 1982 in Budiyanti, 2014).

### Public Space

Integrated public space is the concept of a green open public space or park equipped with various attractive facilities with a guaranteed supervision system (Faedlulloh et al., 2017). Integrated Public Space is the main goal to develop a space or area that can accommodate the merger of open green land by referring to activities that support health in one area, which of course this space can play a good role for the community. Integrated public spaces are used by adults, the elderly, and children, so that in the planning of this integrated public space, attention is paid to the safety aspects of users in addition to the complexity of the facilities provided (Rahmiati & Prihastomo, 2018; Tarigan, 2018).

## 3. METHOD APPROACH

This study uses a qualitative descriptive method that emphasizes the aspect of natural object conditions (as opposed to experiments) where the researcher is the key instrument of data collection techniques carried out in a triangulated (combined) manner, data analysis is inductive/qualitative, and the results of qualitative research emphasize meaning rather than generalization (Sugiono, 2019).

---

Data collection techniques are methods used to obtain the data and information needed to achieve research objectives, (Sugiono, 2017) The data collection techniques carried out in this study are as follows: Namely by making direct observations at the research site to find out the objectivity of the reality in the field. Interviews are intended to obtain information that cannot be obtained through observation. This is because researchers cannot observe the whole thing. Not all data can be obtained by observation, therefore researchers should ask questions to informants.

Data analysis is a process or effort to process data obtained from the results of interviews, field notes and documentation, into new information so that the characteristics of the data become easier to understand and useful for solving a problem, especially related to research. And make conclusions so that they are easily understood by yourself and others, (Sutrisno Hadi, 2018).

In this case, the researcher conducted several data analysis techniques, which are as follows:

1. Data reduction can be interpreted as the process of summarizing, focusing on simplification, abstraction, selecting the main things and discarding unnecessary data that arises from written records in the field.
2. The presentation of this data can be done in the form of tables, graphs, and the like. And in this writing, the researcher focuses more on presenting data using narrative text.
3. The initial conclusions presented at this stage are still provisional, and will change if no strong evidence is found to support them at the next stage of data collection.

## RESULTS AND DISCUSSION

### Scope of Land Utilization Area as Green Open Space and City Park as Public Space in Lima Puluh District

The scope of the research study area is one of the high-density residential areas of Batu Bara Regency. Where the researcher discusses Limapuluh District, the area of densely populated areas is 4.04 km<sup>2</sup>. The identification of the distribution of green open space in Limapuluh District in this study uses qualitative descriptive analysis techniques. The qualitative descriptive method in this study is to analyze, describe, and summarize various conditions and situations from various data collected in the form of spatial analysis results and observations in the field. This analysis will describe the existing number of public RTH availability, the type of Public RTH, the area of Public RTH, and the distribution of Public RTH in Limapuluh District. Some of the variables used in green open spaces are environmental parks, green paths, cemeteries, and river borders. The variables used are based on conditions in the field. With this analysis, it aims to determine the distribution and area of public green open space in Limapuluh District.

Analysis of the need for green open space based on the number of residents in the Limapuluh District area. The determination of the need for green open space based on the number of population is determined by multiplying the number of population with the standard of green open space needs per resident in accordance with the guidelines. The need for RTH per population is determined based on the Regulation of the Minister of Public Works Number 05/PRT/M/2008 concerning Guidelines for the Provision and Utilization of RTH in Urban Areas. To find out the number of public RTH needs based on the number of population, you can see Table 1.2 as follows:

**Table 1.1 Green Open Space Needs Based on Population**

It	Environ mental Unit	RTH Type	Minimum Area/Unit (m <sup>2</sup> )	Standar d (m <sup>2</sup> /per son)	Locatio n
----	------------------------	----------	--	--	--------------

1	250 people	RT Park	250	1,0	In the middle of the RT environment
2	2,500 people	RW Park	1.250	0,5	In the center of the RW neighborhood
3	30,000 people	Village Park	9.000	0,3	Grouped with schools/village centers
4	120,000 people	Garden District	24.000	0,2	Grouped with Schools/Sub-district Centers
5	120,000 people	Funeral	2.000	1,2	Spread
6	480,000 inhabitants	City Park	144.000	0,3	In the center of the region/city
7	480,000 inhabitants	Urban Forest	Customized	4,0	At in/area Suburbs
8	480,000 inhabitants	Specific functions	Customized	12,5	Customized with the need

Source: Permen PU No. 05/PRT/M

In addition, the need for the optimal area of green open space is calculated based on the minimum number of residents found in Table 1.2 for the types of green open space. The approach used to determine the area is to calculate the need for green open space based on the number of residents obtained from Ministerial Regulation No. 5 of 2008 and compare it with the existing RTH condition.

The determination of priority areas for the provision of public RTH uses qualitative analysis, where the determination of priority areas is seen from the percentage of the level of meeting public RTH needs, the higher the percentage of the level of meeting public RTH needs, the less priority the area is. The determination of priority areas for the provision of public RTH is seen based on the provision of existing RTH, the needs of public RTH, and the results of the analysis that has been carried out previously. In the results of the land use analysis to determine the priority area, it is seen from the availability of the least undeveloped land area in each sub-district in Limapuluh District. The availability of the least vacant land is one of the references for determining the priority area of public RTH, this is because villages that have a small area of undeveloped land can cause land conversion to built land. Meanwhile, from the results of the analysis of public RTH needs, it can be seen that the provision of RTH types based on the number of population, so that the need for public RTH in each sub-district is obtained. From these results, the percentage of the fulfillment rate is obtained by dividing the existing RTH by the needs of public RTH. So that the determination of priority areas in the selected sub-districts to be used as public RTH priority areas in Limapuluh District was obtained.

### **Land Use and Distribution of Green Open Space and City Park as Public Space in Lima Puluh District, Batu Bara Regency, North Sumatra Province**

The results of digitization of land use maps in Limapuluh District are divided into several types, including housing/settlements, offices, trade and services, education, worship and others. The land use of Limapuluh District is dominated by the use of land in residential/residential areas with an area of 323.56 ha out of an area of 63,928 ha. The smallest land use is a green open space area of 0.66 ha. The area of cultivation area in Limapuluh District is 490.45 ha or 90.03% and the protected area is 54.31 ha or 9.96%. For more details, the following is Table 1.2 of land use in Limapuluh District.

Table 1.2 Land Use of Limapuluh District

It	Land Use	Area (Ha)
1	Military Zone	3,63
2	Education Public Service Area	22,06
3	Trade and Service Zone	129,87
4	Office Area	11,33
5	Residential Areas	323,56
6	RTH Area	0,66
7	Energy Infrastructure	10,86
8	Transportation Infrastructure	7,25
9	River Boundary	3,70
10	River	31,84
<b>Sum</b>		<b>544,76</b>

Source: Draft RTRW 2020-2040

The distribution of green open space in Limapuluh District based on observations in the field there is a public green open space consisting of 3 sports fields and 3 cemeteries in Limapuluh District. The determination of the need for green open space based on the number of population is determined by multiplying the number of population with the standard of green open space needs per resident in accordance with the guidelines. The population is an integral part of the development system, so this discussion is directed to the identification of the need for public green open space quantitatively in terms of the needs of the population. The need is calculated through an approach to the population regarding the standard of green open space area needs according to the guidelines for the provision and utilization of green open space from the Department of Public Works.

The determination of priority areas for the provision of public RTH in this study uses quantitative analysis. The determination of the priority area for the provision of public RTH in Limapuluh District was obtained based on the results of the calculation of the level of meeting needs based on the availability of existing green open space and the availability of unbuilt land. The calculation of the level of fulfillment of the provision of public RTH is obtained based on the results of the area and the existing RTH in each sub-district in Limapuluh District.

Table 1.3 Calculation of the Public RTH Compliance Rate of Limapuluh District

It	Neighborhoods	Broad Region (M <sup>2</sup> )	RTH Existing (M <sup>2</sup> )	Necessity Public RTH (M <sup>2</sup> )	Level Fulfillment (%)	Land Not Awakened (M <sup>2</sup> )
1	Pioneer	99,01	1.65	15.12	2,7	2.08

Source : 2024 Analysis Results

Based on the results of the calculation, the determination of the priority area for the provision of public RTH is seen based on the level of fulfillment and the provision of the least undeveloped land area.

In making RTH in an area, it certainly has a purpose that can benefit the community (Roswatiningsih, 2019). The purpose of making RTH according to the Regulation of the Minister of Public Works No.5/PRT/M 2008 is an effort to maintain the availability of land that functions for water catchment areas, and can create urban planological aspects by balancing nature and the built environment which will later be beneficial for the interests of the community and can increase the similarity of the urban environment aimed at comfortable urban area security facilities, safe, beautiful, fresh and clean (Kusuma et al., 2014).

#### 4. CONCLUSION

Based on the results of the research and discussion in the previous chapter, it can be concluded as follows:

There are 2 areas of land use in Limapuluh District, namely the area of built land and the area of unbuilt land. The land use area in Limapuluh District is 99.1 hectares which is dominated by unbuilt land areas. To be able to meet the needs of public RTH land in each sub-district in Limapuluh District, at least 1 public RTH in 1 sub-district and optimization of existing vacant lands to be converted into public RTH, especially on vacant land in sub-districts that have little availability of vacant land. Meanwhile, the suggestion for the community to take advantage of vacant land by creating a garden in the yard of the house and maintaining and maintaining public RTH facilities that have been built by the government so as to realize a high and comfortable quality of living environment.

Build a new city park. The government as the authority holder in a city can carry out a strategy for the use of public abandoned land and land acquisition aimed at increasing the development of city parks. Develop green policies. The Regional Government and the DPRD as legislative functions encourage the preparation and determination of regional regulations related to RTH and the RTH Master Plan so that RTH development planning, especially city parks, has legal force. Empowering green communities. Active community participation in green communities is empowered through the creation of green communities, the preparation of action plans, and the institutionalization of the role of green communities.

#### REFERENCES

- Aguila, N. P. et al. (2019) 'Clinical variables and genetic risk factors associated with the acute outcome of ischemic stroke: A systematic review', *Journal of Stroke*, 21(3), pp. 276–289.
- Budiyanti, E. (2014). The Effect of Monetary Policy on Manufacturing Industry Sector Performance in Indonesia. *Journal of Economics & Public Policy*, 5(2), 145--159.
- De La Barrera, F., & Henríquez, C. (2017). Monitoring the Change in Urban Vegetation in 13 Chilean Cities Located in a Rainfall Gradient. What is the Contribution of the Widespread Creation of New Urban Parks? *IOP Conference Series: Materials Science and Engineering*, 245.
- Etiningsih, E. (2016). The Function of City Parks as Public Spaces (Study in Parks. Merdeka Metro City). Bandar Lampung: University of Lampung.
- Faedlulloh, D., Prasetyanti, R., & Indrawati, -. (2017). Initiating a Deliberative Democracy-Based Public Space: A Study on the Dynamics of Child-Friendly Integrated Public Space Management (RPTRA) in North Jakarta. *Public Spirit: Journal of Public Administration*, 12(2), 43.
- Khambali, S. M. (2017). Disaster Management Management. Yogyakarta: Cv. Andi Offset.
- Mexia, T., Vieira, J., Príncipe, A., Anjos, A., Silva, P., Lopes, N., ... Pinho, P. (2018). Ecosystem services: Urban parks under a magnifying glass. *Environmental Research*, 160(August 2017), 469–478.
- Pannen, Paulina et al. (2005). *Constructivism in Learning*. Jakarta: Higher Education. Mone.
- Pratama, F. E., Irwan, S. N. R., & Rogomulyo, R. (2021). The Function of Vegetation as a Microclimate Controller and Sound Reduction in Three Jakarta City Parks. *Vegetalika*, 10(3), 214. <https://doi.org/10.22146/veg.39112>.
- Prakoso, M. S. S., & Safitri, R. D. (2021). Comparative Analysis of Normalized Vegetation Index and Maximum Likelihood Classification Methods for Green Open Space Analysis (Case Study in Pekalongan City, Central Java). *National Seminar on Geomatics*, (pp. 513-522).
- Rahmiati, D., & Prihastomo, B. (2018). Identification of the application of the concept of Child-Friendly Integrated Public Space (RPTRA) in Kambang Iwak Park, Palembang. *Vitruvian*, 8(1), 29.
-

- 
- Sugiyono. (2019). *Quantitative, Qualitative, and R&D Research Methods*. Bandung: Alfabeta.
- Sutrisno Hadi, M. (2018). *Research Methodology*. Yogyakarta: Student Library .
- Tarigan, L. A. (2018). Child security and safety in Kalijodo's child-friendly integrated public space in Jakarta. *Student Journal of the Department of Architecture*, 6(3).