Priority of Development Infrastructure in Tamalanrea City Makassar

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Abstract—The growth and development of a city is a phenomenon that always occurs in every city. The increase in population affects the development of residential infrastructure, both facilities and infrastructure have an important role in the development of settlements in urban areas. The results of the study show that the availability and utilization of infrastructure (basic infrastructure) in supporting community needs and maintaining environmental sustainability around settlements in BTP settlements is still not sustainable. The availability of transportation networks is sufficient to meet the needs with a road network connected to all housing. However, the condition suffered a lot of damage (hollow roads) and the use of transportation modes was still dominated by motorized vehicle users and there were no green lines, pedestrian paths on all road network segments. Waste management infrastructure is not feasible and unsustainable, it is proven that there is no available landfill that can be managed again (3R). Alternative clean water infrastructure is available but the water debit has not been smooth so water flow is only at certain times (at night) by using an engine pump. Based on AHP analysis, the priority of infrastructure development strategies in BTP settlements for the criteria level namely: irst priority, development of clean water infrastructure with a weight value of 0.520: second priority, development of transportation infrastructure with a weight value of 0.242: third priority, drainage infrastructure development with a value of 0.162: and fourth priority, solid waste infrastructure development with a value of 0.076.

Index Terms—Infrastructure development, AHP

I. INTRODUCTION

The growth and development of a city is a phenomenon that always occurs in every city to achieve progress, one of which is the city of Makassar as the largest metropolitan city in eastern Indonesia. In general, the development and growth of a city occurs because of the process of urbanization, namely the entry of residents from outside the city into the city environment and population growth can also be caused by several things, namely naturally due to births and reduced mortality with increasing levels of health and migration due to economic factors, employment and patterns of social life [1].

Population growth rate in Makassar City based on BPS census (2010) shows the average population growth rate of 1,5% per year. The growth of the population of Makassar City is caused by the City of Makassar which is a Metropolitan City providing various facilities and infrastructure needed by the community. The increase in population affects the development process and the development of the activities of a region and the increasing need for space / land which results in the growth of a residential area. Development of settlement infrastructure, both facilities and infrastructure, has an important role in the development of settlements in urban areas.

According to authors [2] define infrastructure as a system or physical facility to provide public services, such as transportation, utilities (water, gas, and electricity), energy, telecommunications, waste treatment, parking lots, sports facilities, recreational and residential facilities. According to authors [2], infrastructure is also related to management and resources for physical facilities. Availability of facilities and infrastructure as needed can support all activities contained in these settlements. The role of infrastructure in an area where the availability of facilities and infrastructure can improve the social and economic welfare of the community.

The condition of physical assets from infrastructure is also influential in determining the distribution of resources and services to meet community needs. The strategic issue in regional development is among others the improvement of the quality of settlements, structuring of buildings and the environment, increasing access to drinking water, improving access to sanitation, meeting minimum service standards and mandating sustainable development goals. Infrastructure development (basic infrastructure) in this case is generally expected to be able to become a priority for regional development which is the basis for increasing development and prosperity in urban settlements. Development of infrastructure (basic infrastructure) such as clean water, waste water disposal, electricity, solid waste, transportation is expected to be a priority for the government for social, economic and cultural interests in a residential environment [3]. Tamalanrea Permai (BTP) Earth Settlement is one of the largest housing and dense settlements in Makassar City even in South Sulawesi. BTP settlements are located in Tamalanrea Village, Tamalanrea Subdistrict, the distance of the Tamalanrea Village is 12 km from the center of Makassar. In 1990, BTP settlements began to develop with a land area of 265 ha provided in various sizes equipped with residential road infrastructure. The location of BTP settlements was originally a catchment area, so that during the rainy season periodic puddles often occur. The development of an area as a residential area will certainly be followed by a request for the provision of infrastructure

that supports settlement activities.

This also happened in BTP settlements, where the demand for settlement facilities and infrastructure was very high. Observing the existing conditions in the Tamalanrea Permai Earth Settlement there are still many infrastructures that must be built but the government's capacity is limited and the time is short in building infrastructure (basic infrastructure) in the complete BTP settlement area. Whereas according to UU RI no 4/1992 about housing and settlements that environmental infrastructure is a complete physical basis of the environment that enables the settlement environment to function properly, hence to spur infrastructure development, it is necessary to determine the priority scale which is the most important thing that must be prioritized for the development of the area based on the infrastructure in the BTP settlement which is optimal according to the target needs, sustainable for the population. The priority of regional development based on the infrastructure (infrastructure) of sustainable BTP settlements is expected to be able to improve social, economic conditions and improve the quality of the environment as a place to live and work for everyone, so that it can become a reference in the development of further settlements in the city of Makassar. Sustainable development is development that is able to meet the needs of the present without ignoring the ability of future generations to meet their needs [4]. This study aims to determine the availability and utilization of settlement infrastructure and the problems faced by the community in the Tamalanrea Permai Earth Settlement.

II. METHOD

A. Location and Design of research

This research was carried out in Makassar City, especially in the Tamalanrea Permai Earth Settlement. The type of research used is descriptive-quantitative. The research aims to describe the existing condition of the area and infrastructure, analysis and formulation that relates the condition of infrastructure to the priority of infrastructure development in the Tamalanrea Permai (BTP) Earth settlement.

B. Population and Samples

The population in this study are all parties that are directly related and who are considered to master the aspects of settlements and understand the aspects of infrastructure in the city of Makassar, namely users, experts and stakeholders. Sampling is based on determining the zone area using a proportional random cluster method, so that the sample is 81 samples, which are divided into 3 regions (blocks) of each block, namely the Commercial area (Along the Main road) of 27 samples, Population Solid area (Blok A to D) 28 samples and inundation area (Blok AF) 26 samples.

C. Data Collection Method

Data collection is carried out by a trained field survey team and uses a pre-tested questionnaire. Data collection techniques used in this study consisted of 1) secondary data collection, namely by making visits to agencies / institutions that have

information including: Makassar City Public Works, Tamalanrea District, Tamalanrea Village, and BTP Public Housing Office. Secondary data contains population data and regional data related to the Research Location. As for the Literature Study, by reviewing and reviewing the literature on similar infrastructure from both domestic and foreign literature, such as books, journals, papers both thesis / dissertation and searching on the internet. The process of literature study is expected to gain knowledge about the problems related to infrastructure development in the research area and develop the priority scale of BTP Settlement infrastructure development. Primary data collection includes:

1) Data from observations / field observations regarding the condition of infrastructure (Transportation, Drainage, Waste, Clean Water, RTH) contained in BTP Settlements.

2) Data from observations / field observations regarding the condition of each region and the problems found in BTP Settlements related to the environment. This primary data is used to strengthen and explain the secondary data that has been obtained. AHP analysis is carried out with the opinions of experts who are considered to master the aspects of settlements and understand aspects of infrastructure.

The data analysis technique in this study used was descriptive qualitative analysis of the condition of the area and the availability of infrastructure from BTP settlements. After looking at the availability of infrastructure, the next analysis phase is to formulate a priority plan for infrastructure development using Analytic Hierarchy Process (AHP). The methods used in the preparation of priority strategies for regional development based on infrastructure in BTP settlements are some mathematical models that have been developed, selected model of Analytic Hierarchy Process (AHP) which is able to accommodate various influencing criteria (compound criteria). Multiple criteria is a method of making decisions on a problem or goal based on several criteria that influence the problem. Given the purpose is still general, it needs to be described in several criteria, each of which has a sub-criteria and sub-criteria to obtain a hierarchy of these objectives. Hierarchy analysis is intended to formulate weights based on the objective hierarchy in the criteria and sub-criteria. Assessment may be inconsistent, and how to assess inconsistency and improve assessment, so that it is more consistent with the concept of the application of the method AHP [5].

Population growth rate in Makassar City based on BPS census (2010) shows the average population growth rate of 1,5 % per year. The growth of the population of Makassar City is caused by the City of Makassar which is a Metropolitan City providing various facilities and infrastructure needed by the community. The increase in population affects the development process and the development of the activities of a region and the increasing need for space / land which results in the growth of a residential area. Development of settlement infrastructure, both facilities and infrastructure, has

an important role in the development of settlements in urban areas.

III. Results and Discussion

Data collection is carried out by trained and used field survey teams pre-tested questionnaire. The data collection technique used in this study consisted of

1) Secondary data collection is by conducting visits to agencies / institutions that have information, namely: Makassar City Public Works, Tamalanrea District, Tamalanrea Village, and BTP Housing Office. Secondary data contains population data and regional data related to the Research Location. As for the Literature Study, by reviewing and reviewing the literature on similar infrastructure from both domestic and foreign literature, such as books, journals, papers both thesis / dissertation and internet searches. The process of literature study is expected to gain knowledge about the problems related to infrastructure development in the research area and formulate the priorities of the settlement infrastructure development of BTP.

2) Primary data collection includes: Data from field observations / observations regarding infrastructure conditions (Transportation, Drainage, Waste, Clean Water, RTH) found in BTP Settlements. Data from observations / field observations regarding the condition of each region and the problems found in BTP Settlements related to the environment. This primary data is used to strengthen and explain the secondary data that has been obtained AHP analysis is carried out with the opinions of experts who are considered to master the aspects of settlements and understand aspects of infrastructure.

A. Data analysis method

Analysis of the data in this study used was a qualitative descriptive analysis of the condition of the area and the availability of infrastructure of BTP settlements. After looking at the availability of infrastructure, the next analysis phase is to formulate a priority plan for infrastructure development by using Analytic Hierarchy Process (AHP). The method used in the preparation of priority strategies for regional development based on infrastructure in BTP settlements is some mathematical models that have been developed, selected models is Analytic Hierarchy Process (AHP) which is able to accommodate various influencing criteriai (compound criteria). Multiple criteria is a method of making decisions on a problem or goal based on several criteria that influence the problem. Given the purpose is still general, it needs to be elaborated in several criteria, each of which has sub-criteria and sub-criteria to obtain a hierarchy of objectivest. Hierarchy analysis is intended to formulate weights based on the objective hierarchy in the criteria and sub-criteria. Assessment may be inconsistent, and how to assess inconsistency and improve assessment, so that it is more consistent with the concept of the application of the method AHP [5].

IV. Conclusion

Based on the results of the discussion and analysis conducted on the research objectives, it can be concluded that the availability of transportation networks is sufficient to meet the needs and utilization of transportation modes which are still dominated by motorized vehicles. Solid waste infrastructure is not available for a manageable waste disposal site (3R) and there is only a lack of garbage transportation facilities, there are only 2 garbage trucks that should have 10 garbage trucks. Based on the results of the AHP (Analytic Hierarchy Process) analysis, the Priority of infrastructure development strategies in BTP Settlements, namely

1) Clean Water Infrastructure Development (weight value 0.520), especially an increase in water debit (weight value 0.505).

2) The second priority is the development of Transportation Infrastructure (weight value 0.242), especially improvement in road conditions (weight value 0.496)

Better development of clean water infrastructure based on the standard of the Minister of Health Regulation No.416/PerMenKes/IX/1990 regarding Water Quality Guidelines, and there needs to be a strategy, objectives and operational steps in the development of the water sector. It is better for the city government and the developer (Perumnas) to follow up on the provision of infrastructure that fits the needs of the community in BTP Settlements by using the concept of settlement infrastructure development through the active role of the inhabiting community through capacity building of the local community.

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