

## Analysis of Prioritization of Road Development in Regional Development in North Labuhanbatu Regency

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### Abstract

*The purpose of this study is to find out how effective location / area conditions are a top priority for the determination of road construction in North Labuhanbatu Regency. The interview data showed that 3 (three) criteria taken in this study, using the Analytical Hierarchy Process (AHP) method were obtained, namely, the cost of development (33.7%), road conditions (46.9%) is the most dominant criterion and level of importance (19.4%). By including 3 (three) criteria against 15 (fifteen) proposals, the evaluation of the comparison of road development priorities of North Labuhanbatu Regency in Fiscal Year 2019 with the priority of alternative road development in regional development obtained 2 (two) road activities that became priorities for Alternative Road Development, namely Hardening Jl Pasar Barat Towards Block I Lingk. West Market Kel. Tanjung Leidong Kec. Kualuh Leidong and Jl Bawal Lingk Development. Kp Baru 4 Kel. Tanjung Leidong Kec. Kualuh Leidong.*

### Keywords

prioritization, road construction, analytic hierarchy process (AHP), North Labuhanbatu Regency



## I. Introduction

The Strategic Plan of the Housing And Residential Area Office of North Labuhanbatu Regency 2017-2021 as the implementation of Law No.25 of 2004 on the national development planning system, was prepared taking into account the development of the strategic environment and guided by the Regional Medium Term Development Plan (RPJMD) (North Labuhanbatu P. 2017). In the strategic plan of the Housing and Residential Area Office of North Labuhanbatu Regency in 2017-2021 there are 92 (ninety-two) environmental road development activities programs.

Development is a systematic and continuous effort made to realize something that is aspired. Development is a change towards improvement. Changes towards improvement require the mobilization of all human resources and reason to realize what is aspired. In addition, development is also very dependent on the availability of natural resource wealth. The availability of natural resources is one of the keys to economic growth in an area. The relationship between inflation and economic growth is one of the debatable issue and the most important macroeconomic discussions among macro economists, policy-makers and monetary authorities in all countries (Wollie in Shah, M. et al. 2020).

The Regional Development Plan is prepared through the implementation of the Musrenbang (Development Planning Deliberation) which is a deliberation forum between stakeholders. The deliberation forum to discuss and agree on measures for handling priority activity programs listed in the list of proposed village development activity plans integrated with district / city development priorities in the District area.

In the Work Plan of the Department of Housing and Settlement of North Labuhanbatu Regency in 2019, it discusses the planning for the construction of environmental roads as many as 15 (fifteen) proposed environmental road construction work activities. The proposal came from each district in the North Labuhanbatu Regency area. Furthermore, at the District Development Planning Deliberation stage, the proposed environmental road construction has determined 9 (nine) environmental road construction work activities which are priorities in the road construction activity program built in the 2019 Fiscal Year.

Road construction which is a priority in the road construction activity program for the 2019 Fiscal Year is the Construction of Concrete Rabat in Brussels Hamlet II and IV Villages, Merbau Distric, Manufacture of concrete rebates on Pasar baru road Masjid Village Kualuh Hilir District, Making concrete rebates on the long road in the Gunting Saga district. South Kualuh, Making Concrete Rebates from the front gate of the Aek Kuo district office to the parking area of the Aek Kuo District, Construction of Rabat Beton in the village to build rejo for waqf dirt roads, Na IX-X District, Construction of the Peri Hamlet Cement Road week I Neighborhood. Tanjung Leidong Village Kualuh Leidong district, Construction of Rabat Concrete Road in III Neighborhood, Gunting Saga Village, South Kualuh District, Construction of Rabat Concrete Road in IV Neighborhood, Gunting Saga Village, South Kualuh District, Construction of Concrete Rabat in Sei Piandang Hamlet, Kuala Bangka Village, Kuala Hilir District.

As for the existing road which is designated as a priority for road construction in North Labuhanbatu Regency for the 2019 fiscal year, from initial research, it can be seen that the condition of the road is still around 50% suitable for use by the community with the length and width of the road that still fulfills so that it does not need to be a priority. Furthermore, if examined from the aspect of the cost of developing the priority program for road construction, it is still categorized as 20% higher than the financing for environmental road construction in North Labuhanbatu Regency. If viewed from the aspect of the level of development importance, there are still many areas that need more road construction, for example the Kualuh Leidong District and Aek Natas District.

From the decision to determine 9 (nine) priorities for regional road development in North Labuhanbatu Regency for the 2019 budget year, it is categorized as inadequate and needs further evaluation. Based on the research problems above, the purpose of this study is to find out how the environmental road conditions are a top priority for determining the implementation of road construction in North Labuhanbatu Regency.

## **II. Review of Literature**

### **2.1. Regional Development**

#### **a. Regional Development Indicators**

Development is conceptualized as a process of continuous and sustainable improvement of a society or a social system as a whole towards a better life (Rustiadi, Saefulhakim, & Panuju, 2011).

#### **b. Scope of Regional Development Planning**

According to Law no. 25 of 2004 concerning the national development planning system, there are five scopes of regional development planning (Nasution M. A., 2008), namely;

- a. Regional Long-Term Development Plan
- b. Regional Medium Term Development Plan
- c. Regional Apparatus Organization Strategic Plan (RENSTRA OPD)

- d. Local Government Work Plan
- e. Regional Apparatus Organization Work Plan

## **2.2. Decision Making in Policy Making**

### **a. Policy in Decision Making**

Gary Brewer and Peter DeLeon (1983: 179) describe the decision-making stage in public policy as a choice of various policy alternatives that have been raised and the impact that may arise in the estimated problem. This stage is a political stage when various potential solutions to a particular problem must be won and only one or several solutions are selected and used (Anggara, 2014).

### **b. Decision Making in Regional Planning**

Regional development planning cannot be separated from what currently exists in the region. The actors who create regional activities are all the people in the area and outside parties who want to carry out activities in the area. The group of actors includes the central government, provincial government, district government, private entrepreneurs, State-Owned Enterprises, Village-Owned Enterprises, cooperatives and the general public.

### **c. Top Down and Bottom up Planning**

Top-down planning is when the main authority in planning lies with higher institutions where planning institutions at lower levels must accept plans or directions from higher institutions. The plans of the higher institutions must be part of the plans of the lower institutions. This relates to the implementation of regional planning in the regions where some of the development planning is based on higher institutions.

### **d. Public Policy and Community Participation in Planning and Development**

The term policy is associated with government decisions, because the government has the authority or power to direct the community, and is responsible for serving the public interest. According to Thomas Dye, policy is the government's choice to do or not do something (whatever government chooses to do or not to do) (Abidin, 2004).

### **e. Technocratic**

The technocratic approach in regional development planning uses scientific methods and frameworks to achieve regional development goals and objectives. The technocratic approach involves and accommodates scientific and technological developments. Actors or planners come from each field of expertise.

## **2.3. Development Goals**

### **a. Regional Development Vision for North Labuhanbatu Regency**

North Labuhanbatu Regency Development Mission 2016-2021, namely the first mission is continuous bureaucratic reform in order to realize good, clean and authoritative governance based on faith and piety; The second mission is to increase the availability of facilities and infrastructure, social and public facilities for the community; The third mission is to improve the quality of independent human resources based on science and technology and faith and piety; The fourth mission is to build and develop the community's economy through the use and management of local and environmentally sound resources; The fifth mission is to improve decent living standards, safety and comfort.

## **b. Development Priority**

Limited time, manpower, and funds make it impossible to do many things at the same time, so it needs to be prioritized. Priority is important because of these limitations even though it needs to be improved in many ways, and everything must be done with fast time, sufficient funds and main quality so that it needs to be done in a way, namely: by setting priorities (Roy & Sandra Sembel, 2003).

## **c. Definition of Road Construction**

Regional physical (road) development planning includes several activities, including selecting and prioritizing several projects. Therefore, several criteria are needed to be able to assess whether a development plan is feasible to be implemented. These criteria include, among others, cost effectiveness, project location, population target, low income community, local government capacity, community capacity (Harun, 2004/2005).

## **d. Road Network in Regional Spatial Planning**

Roads are planned and designed in such a way that there is a hierarchy that forms a service system that is inseparable from the spatial pattern of activities (North Labuhanbatu P. K., 2015). The character of the road that is able to act as a trigger and promoter of development is a real fact. The road section that was built as a liaison between one area and another, immediately changed the value of the land on the lane in question as a result of increased access.

Based on the management, roads are divided into (Suwardjoko P.Wapani, ITB):

- 1) State roads, namely roads developed by the Central Government;
- 2) Provincial Roads, namely roads that are fostered by the Regional Government;
- 3) Regency Roads, namely roads that are developed by the Regency or City Government;
- 4) Village Roads, namely roads that are fostered by the Village Government.

## **2.4. Criteria in Prioritizing**

In determining priorities, several criteria are needed which are the basis for assigning weighting choices. In this study, the researcher conducted interviews with the actors of regional development planning in North Labuhanbatu Regency regarding what criteria were taken into consideration in determining the priority of road construction in North Labuhanbatu Regency, namely;

- a) Development Cost
- b) Road Condition
- c) Level of Interest

## **2.5 Analytic Hierarchy Process (AHP) Method**

AHP is one method to help develop a priority from various options using several criteria (multi criteria). Due to its multi-criteria nature, AHP is quite widely used in setting priorities. Besides being multi-criteria, AHP is also based on a structured and logical process (Susila & Munadi, 2007). AHP is a mathematically based procedure that is very good and suitable for the evaluation conditions of qualitative attributes. These attributes are mathematically quantified in a set of pairwise comparisons. The advantages of AHP compared to others are because of the hierarchical structure, as a consequence of the selected criteria, down to the most detailed sub-criteria. Taking into account the validation up to the tolerance limit for the inconsistency of various criteria and alternatives chosen by decision makers (saaty, 1993).

### **a. Decomposition**

In setting priorities, the preparation of priorities must be able to be decomposed into the objectives of an activity, identification of options, and formulation of criteria for selecting priorities. The first step is to formulate the objectives of a priority setting activity followed by determining the criteria for the objectives. Based on the objectives and criteria, several options need to be identified so that these options are potential options so that the number of choices is not too many (Sembiring, 2008).

### **b. Element Rating/Comparison**

After the problem is decomposed, there are two stages of assessment or comparison between elements, namely comparisons between criteria and comparisons between choices for each criterion. Comparison between criteria is intended to determine the weight for each criterion. On the other hand, the comparison between choices for each criterion is intended to see the weight of an option for a criterion. In other words, this assessment is intended to see how important a choice is in terms of certain criteria (Susila & Munadi, 2007).

### **c. Assessment Synthesis**

The synthesis of the assessment results is the final stage of the AHP. Basically, this synthesis is the sum of the weights obtained by each choice on each criterion after being given the weight of the criteria.

## **III. Research Methods**

This research uses a qualitative method of research. the author takes a technocratic approach using the Analytic Hierarchy Process (AHP) method. The purpose of using the AHP method is to compare whether there are similarities or differences in setting a priority from various options using several criteria. Location The research was conducted in North Labuhanbatu Regency. Especially in the capital city of North Labuhanbatu Regency, namely Aek Kanopan District, Kualuh Hulu District.

The object of research in this thesis is the proposed road construction from the process of implementing the development planning deliberation of North Labuhanbatu Regency which was carried out in 2019. The data collection technique is collecting stakeholder perception data in assessing the interests of the selected criteria through interviews. The population in this study are all road construction proposals listed in the North Labuhanbatu Regency Work Plan and Regional Program for the 2019 fiscal year at the North Labuhanbatu Regency Housing and Settlement Area, namely there are 15 road construction proposals.

## **III. Result and Discussion**

### **3.1. North Labuhanbatu Regency Road Development Priorities for Fiscal Year 2019**

The weight of each criterion analyzed by the AHP method begins with analyzing the data on the recapitulation of respondents' answers to the criteria through a questionnaire and then analyzed by inverse calculation according to the pairwise comparison matrix. After evaluating the priority of road construction in North Labuhanbatu Regency using AHP, the results are as presented in Table 1 below:

**Table 1.** Average Criteria Score

No.	Criteria	Scoring
1.	Construction cost	0.337
2.	Road condition	0.469
3.	Importance	0.194

*Source: Results of questionnaire data processing*

The results of the assessment scores above indicate that the one with the highest score is the road condition criteria, which is 46.9%. This means that the criteria for the condition of the road are higher than the development costs incurred for the construction of the road. This is related to the condition of the North Labuhanbatu Regency area with a bumpy to hilly topography, as well as a fairly high rainfall, so the potential for road damage is quite high. This means that respondents consider that the criteria for road conditions are of higher importance than the criteria for development costs and the criteria for the level of importance.

#### **a. Priority of road construction for construction cost criteria**

After evaluating the priority of road construction for development costs using the AHP method, the results obtained that the road network for making Rabat Concrete in Rombisan Village, hamlet I Badarussalam, Aek Natas District has the lowest score of 2.7%. According to respondents, the lowest construction cost for road construction in North Labuhanbatu Regency is on the Rabat Beton Construction road in Rombisan Village, hamlet I Badarussalam, Aek Natas District.

#### **b. Priority of road construction for road condition criteria**

After evaluating the priority of road construction for road conditions using the AHP method, the results obtained that the road network for Continuation of Road Pavement in Hamlet III B, Parpaudangan Village, Kualuh Hulu District has the lowest score of 3.3%. According to the respondent, the lowest road conditions for road construction in North Labuhanbatu Regency are on the road network of Advanced Pavement Road Dusun III B Parpaudangan Village, Kualuh Hulu District.

#### **c. Priority for road construction for criteria of importance**

After evaluating the priority of road construction for the level of importance with the AHP method, the results obtained that the road network for Continuing Pavement Road Hamlet III B Parpaudangan Village, Kualuh Hulu District has the lowest score of 3.1%. According to the respondent, the lowest level of importance for road construction in North Labuhanbatu Regency is on the road network for Advanced Paving of Hamlet III B Village, Parpaudangan District, Kualuh Hulu District.

### **3.2. Overall Road Development Priority**

After conducting a thorough evaluation of road development priorities using AHP, the results showed that the highest priority score for road construction was the road network for the Construction of Semen Road Peri Neighborhood alley, Week I Tanjung Leidong Village Kualuh Leidong district, which is 10.4%. Based on the priority of road construction, the road network for the Construction of Semen Road Peri Neighborhood alley Week I Tanjung Leidong Village Kualuh Leidong district is a road network that has the highest priority to be handled compared to other road networks.

After evaluating the priority of road development in North Labuhanbatu Regency, a ranking order of road construction priorities in North Labuhanbatu Regency was obtained which was taken from ranking 1 (one) to 9 (nine) which was adjusted to the decision of the results of the Regency musrenbang for the 2018 fiscal year as many as 9 development activities. Environmental road in North Labuhanbatu Regency.

### **3.3. Comparative Evaluation of North Labuhanbatu Regency Road Development Priorities for the 2019 Fiscal Year with Alternative Road Development Priorities for Regional Development**

From the results of the comparative evaluation of the analysis of the priority analysis of road development in North Labuhanbatu Regency for the 2019 budget year with the priority of alternative road development using AHP, there are 2 (two) road development priorities that can be alternatives that are studied in terms of road condition criteria, development cost criteria, and importance level criteria, namely Hardening road of West Market Towards Bloc I Neighborhood West Market Tanjung Leidong Village Kualuh Leidong district and the construction road of Bawal Neighborhood New Village 4 Tanjung Leidong Village. Kualuh Leidong District.

Where the two alternative road development priorities are in the Leidong district with the realization level of revenue from the district not yet reaching the target of determining the revenue set by the North Labuhanbatu Regency government. One of the reasons for this is because the condition of the roads in the Leidong district is still not good. From the results of the priority analysis of alternative road development in North Labuhanbatu Regency based on the Regional Spatial Pattern Plan and Strategic Area Plan in the Regional Spatial Plan of North Labuhanbatu Regency, namely:

- a) Making The Cement Road Peri Environment Week I Tanjung Leidong Village Kualuh Leidong District, Hardening of West Market Road To Block I West Market Environment Of Tanjung Leidong Village Kualuh Leidong District, and Construction road of Bawal Neighborhood New Village 4 Tanjung Leidong Village Kualuh Leidong District is included in the protected area in the pattern of regional space and is a strategic area of environment in the strategic area plan of Labuha Regency North.
- b) Making Concrete Rebates From the Front Gate of the Aek Kuo District Office to the Parking Area Aek Kuo District is a plantation designation area in the regional spatial pattern and is also an economic strategic area in the strategic area plan of North Labuhanbatu Regency.
- c) Construction of Rabat Beton in Bangun Rejo Village, road of Waqf soil, Na IX-X District is a nature reserve protected area in regional spatial patterns and is also an environmental strategic area in the strategic area plan of North Labuhanbatu Regency.
- d) Construction of Rabat Beton in Sei Piandang Hamlet, Kuala Bangka Village, Kualuh Hilir District and Making Concrete Rebates on road of New Market Village Mosque Kualuh Hilir District is an area designated for wetland agriculture in the spatial pattern of North Labuhanbatu Regency.
- e) Construction of Concrete Rabat in Brussels Village, Hamlet II and IV, Merbau District is a plantation designated area in the spatial pattern of the North Labuhanbatu Regency.
- f) Construction of Rabat Concrete Road in Neighborhood III, Gunting Saga Village, South Kualuh District is an agricultural designation area in the spatial pattern of North Labuhanbatu Regency.

From the results of the research and application of AHP weighting, the assessment of the parts used shows that the priority tends to be on the technical aspects, namely road conditions which are more concerned with road infrastructure and development costs. Thus,

the assessment considers that the road with poor condition to be built has a more important function. The result is: in determining the priority scale, the technical aspect of road conditions becomes the main indicator, supported by aspects of development costs and the level of importance as a secondary indicator.

The results of the comparison of decisions between the AHP method and the existing implementation show that the aspects of the existing criteria produce decisions that are not too different in results and this indicates that the segment assessment design using AHP applies. This study uses 3 criteria, namely road conditions, construction costs, and level of importance. It is recommended that the road planning management in North Labuhanbatu Regency use several criteria as the basis for determining the priority of road development planning.

#### IV. Conclusion

- 1) The results of the North Labuhanbatu Regency Government Development Planning Deliberation set 9 (nine) environmental road construction work activities that became priorities in the road construction activity program that was built in the 2019 Fiscal Year.
- 2) Based on the benefit analysis that of the three criteria in the analysis of determining the priority of road construction in North Labuhanbatu Regency, namely the criteria for development costs, criteria for road conditions, and criteria for the level of importance, it is concluded that the criteria for road conditions are more important in determining road construction priorities and development costs are second in the ranking, prioritization and then the last is the importance level criteria.
- 3) From the results of the priority analysis of alternative road development using AHP with the expertchoice 11 method, which has heavily damaged road conditions of about 60% with uneven road surfaces and large potholes due to the collapse of old road materials, damaged and proper pavements, and road widths. not in accordance with the established environmental road criteria. In this study, this is a top priority for determining the implementation of road construction in North Labuhanbatu Regency.

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