

Directions for Road Management Plans and Strategies for Regional Development in Aceh Besar Regency, Indonesia

Irhamdi¹, Santun R. P. Sitorus², Soekmana Soma³

¹Regional Planning Science Study Program, Post-Graduate School, IPB University, Bogor, Indonesia

²Regional Planning Science Study Program, Post-Graduate School, IPB University, Bogor, Indonesia

³Faculty of Engineering, Krisnadwipayana University, Bekasi, Indonesia

ABSTRACT

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Since Aceh Besar Regency has limited funds, it should focus more on road transportation services on improving existing roads. This study aims to determine the condition of existing roads, analyze the level of development of the sub-regency, analyze and develop road management plans and strategies in Aceh Besar Regency. Descriptive analysis methods, GIS, and scalogram to identify the level of development in the sub-regency and methods to get decisions about road management plans and strategies in this study used the AHP and SWOT methods. The results of the study show that the existing road conditions are around 1,644.36 KM in good condition, 330.48 KM and 387.08 KM in moderate condition, while the rest are still in a damaged condition, for the type of asphalt surface around 761.91, while the rest is still in the form of gravel and soil. The scalogram results show 3 regency are service centers (Hierarchy I), 9 regency are service sub-centers (Hierarchy II), and 11 sub-regency are hinterland areas (Hierarchy III). Based on the AHP analysis, it is found that the potential for tourism objects is more dominant in determining road handling, namely there are 5 priority sections and in the SWOT analysis using the ST (Strength-Threats) diversification strategy (1) Road handling is carried out by the regional government of Aceh Besar Regency in developing regional potential such as regional tourism objects, markets and agriculture, (2) The government focuses on building damaged road infrastructure for smooth accessibility, (3) Aceh Besar Regency Government utilizes the private sector or investors in road handling (4) The regional government aims to maintain road quality for convenient access to all territory.

Keywords: Road handling, Scalogram, AHP, SWOT.

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I. INTRODUCTION

Development and space are one unit, because space is a medium in development. Good development, optimally regulating the space and natural resources contained therein to preserve the environment (Febrianto et al 2019). Regional development needs to be seen from the condition of the area, such as the superior potential of the area must be used as a basis for consideration in determining regional development strategies based on the linkages of the development of the socio-economic conditions of the surrounding community, the potential of natural resources, and the availability of regional facilities and infrastructure that can support economic activities in the region. (Purnama et al 2019). Development activities are carried out in developing countries to create better conditions than before. Economic development is not enough with an increase in per capita income in the long term, but what is more important is that the number of poor people has not increased and the income distribution is not getting more unequal (Subandi, 2014). A well-designed infrastructure can also make growth more inclusive by sharing benefits to poor groups and communities, especially by connecting remote areas and small countries to major business centers (Bhattacharya 2010).

The regional development approach is one of the solutions that are considered appropriate in accelerating the development of a region, regional development is seen as a process or stage of development activities in a certain area which in its realization involves the interaction between human resources and natural resources including artificial resources (Syarifudin et al 2014). Connecting transportation services from service centers located not far to isolated, remote, underdeveloped and border areas. The positive impact is to increase the production and productivity of its potential sectors, increase employment and community income. The availability of a transportation infrastructure network

that connects all cities and production centers in all regions provides opportunities and encourages development and enhancement of regional economic growth (Miri, 2014).

Examined conflicts in infrastructure development planning, in the identification results it was found that the core problem was the lack of communication between residents affected by development and developers during the development planning period (Shen et al 2010). It is imperative to develop road network infrastructure in line with the increasing need to support economic growth, especially in areas with strategic value (Afriansyah et al. 2012). Increasing the length of roads is an important production factor for districts / cities with low per capita GRDP and low Human Development Index (IPM). The road network system is a unit of road that connects and binds growth centers with areas that are under the influence of its services in a hierarchical relationship (Novitasari and Maryati 2015).

Therefore, road planning in Aceh Besar District is very important to consider the level of development of the area to be served. The condition of the length of roads in Aceh Besar Regency in 2018 shows that the length of Regency roads according to the District is in good condition along 330.48 KM, 387.08 KM, 244.18 KM lightly damaged, and 317.71 KM heavily damaged. So in handling and road management strategies in Aceh Besar District, it should be more focused on road transportation services through improving existing roads, not by building new roads that refer to the Regulation of the Minister of Public Works No.14 / PRT / M / 2010. Since the funds for road management in Aceh Besar District are limited, priority is needed for road handling so that the allocation and use of limited funds can be effective. In determining and planning roads in an area based on the function, class and status of the road, it is necessary to consider the existing regional potentials.

II. METHODS AND MATERIAL

The research area is located in the administrative area of Aceh Besar Regency, Aceh Province, which has an area of 2,903.50 km² and is geographically located between 5.05 ° -5.75 ° south latitude and 94.99 ° - 95.93 ° divided east longitude. over 23 districts, 68 Mukim and 604 Gampong / Village (BPS Aceh Besar District, 2020).

A. Research methods

The data analysis carried out included descriptive analysis, GIS, scalogram analysis, AHP and SWOT. Scalogram analysis uses Microsoft Excel 2013 application to tabulate data on the number of facilities. The data collected by the questionnaire is carried out by the process of entering data in tabulated form, then the SWOT analysis process is carried out for the determination and strategy of road handling, the determination and planning of road in an area is carried out by referring to the Minister of Public Works Regulation No.14 / PRT / M / 2010 with a focus road transportation services through enhancement of the existing road.

B. Descriptive Method

The data description process basically includes the search and disclosure of relevant information contained in the data and the presentation of the results in a more concise and simple form, which ultimately leads to the need for explanation and interpretation. In this study, descriptive analysis is used to reveal or describe the condition or accurate facts of the object being observed, including: road data, regional potential data (food crops and tourism), human resource potential data (population density), and data-data in the RTRW of Aceh Besar Regency for the purposes of analyzing existing road conditions and Analysis of Road Conformity with Regional Potentials.

C. Scalogram Analysis

Scalogram analysis to analyze the level of development of the Aceh Besar sub-regency, the

criteria for determining the development area at the Regency level are determined based on the principle of balanced development where developing and less developed areas need treatment to be built, three choices of handling arrangements for areas such as areas that have low economic diversity and balance, In areas that have relatively slow village development, and areas that are not efficient in terms of resource utilization (Sudarya, 2013), hierarchical class is taken for the factor in the road management plan matrix I. Scalogram analysis requires data on infrastructure facilities and hierarchical classes based on standard deviation (stdev) values of the CPI and the mean value as shown in Table I.

TABLE I
Hierarchical Value Determination Table

No	Class	Hierarchy Level	Interval Value
1	Hierarchy I	Subdistrict Development Index > (mean + Stdev)	High
2	Hierarchy II	Average <Subdistrict Development Index <Stdev	Moderate
3	Hierarchy III	Subdistrict Development Index <average	Low

D. Analytical Hierarchy Process (AHP)

The alternative decision to choose the best when the decision maker has several goals / criteria for making certain decisions, the decision making process can be graphically depicted so that it is easily understood by all parties involved in decision making (Muntasar et al. 2011). The main tool of AHP is a functional hierarchy with the main input being human perception. With a hierarchy of complex and unstructured problems solved into groups, then the groups are arranged into a hierarchical form. The AHP method is a decision-making approach designed to help find solutions to various kinds of complex multicriteria problems in a

number of application domains (Saaty and Sodenkamp, 2010).

E. Road Management Plan and Strategy

The formulation of the road section handling plan is found based on the planning consideration matrix in the preparation of road handling directions which is then made a logical synthesis to obtain consideration of road sections, indicators for road handling considerations are determined based on the following: (1) the condition of the road is lightly damaged and weight; (2) regional / territorial potentials, including tourist objects, agriculture, densely populated areas

and central government; and (3) subregency development index, namely regencys that have hierarchical development index I and II. The handling only focuses on priority 1 which consists of damaged road conditions, potential tourist attractions with the central government and the sub-regency development index in hierarchy 1. Therefore, from several indicators in the road handler consideration matrix, road priorities are obtained which are more clearly seen in Table II. Road Handling, the road sections are as follows:

TABLE II
MATRIX FOR PREPARATION OF ROAD MANAGEMENT DIRECTIONS

No	Existing Road Section Condition	Alternative Stakeholder Decisions Regarding Regional Potentials	Regency Development Index	Priority
1	Heavy and Light Damage	Tourism Objects and Government Centers	hierarchy I	Priority 1
2	Heavy and Light Damage	Tourism Objects and Government Centers	hierarchy II	Priority 2
3	Heavy and Light Damage	Dense Population	hierarchy I	Priority 3
4	Heavy and Light Damage	Dense Population	hierarchy II	Priority 4
5	Heavy and Light Damage	Agriculture and Markets	hierarchy I	Priority 5
6	Heavy and Light Damage	Agriculture and Markets	hierarchy II	Priority 6

F. Road Handling Strategy Analysis (AWOT)

The regional development strategy for road handling in Aceh Besar Regency was obtained using A'WOT analysis obtained from interviews with experts. A'WOT analysis is a combination of the Analytic Hierarchy Process (AHP) method and Strength, Weakness, Opportunities, Threats (SWOT). A'WOT analysis is used to formulate and plan policy strategies in road management strategies. Combining the two AHP and SWOT analysis techniques is expected to mutually enhance and minimize the level of

subjectivity of a resulting policy (Rosdiana 2011). SWOT is a comparison between external factors and internal factors so that strategic decisions can be made. The SWOT matrix shown in Figure 1 clearly illustrates how the (external) opportunities and threats faced by the Government of Aceh Besar can be adjusted to their (internal) strengths and weaknesses.

	Eksternal		
Internal		Strength (S)	Weaknes (W)
Opportunities (O)		SO strategy	WO strategy
Threats (T)		ST strategy	WT strategy

Figure 1.: SWOT matrix

Information :

1. SO strategy, using all strengths to seize and take advantage of opportunities as much as possible.
2. ST strategy, using the strength that is owned to overcome the threats that may arise.
3. WO strategy, taking advantage of existing opportunities by minimizing existing weaknesses.
4. WT strategy, is defensive in nature by trying to minimize existing weaknesses and avoid threats that may arise.

III. RESULTS AND DISCUSSION

A. Road Condition in Aceh Besar Regency

The condition of the road network in Aceh Besar Regency. Based on the length of the existing road sections around 1,644.36 Km, the length of the road in good condition is 534.32 Km, moderate 463.65 KM, slightly damaged 270.87 Km, severely damaged 375.52 Km and road length based on the type of asphalt surface 843.69 km, gravel 356.52 km, soil 74.41 km. The road system in Aceh Besar Regency is divided into several clusters. According to Hardiyantmo (2015) states that the types of road damage are generally different, so the types of road damage include cracks, grade depression and potholes. To see the condition of the existing sub-district road in Aceh Besar can be seen in Table III.

TABLE III
CONDITIONS OF THE EXISTING ROAD IN ACEH BESAR REGENCY 2019

No	Sub regency	Condition of Road Length (KM)				Surface Type (Km)		
		Good	Moderate	Lightly damaged	heavily damaged	Asphalt	Gravel	Land
1	Seulimeum	137,8	44,4	37,9	40,9	72,0	54,7	11,0
2	Indrapuri	114,3	25,7	32,8	20,3	55,0	51,8	0,0
3	Montasik	89,2	21,4	10,7	22,8	74,3	9,5	5,2
4	Darul Imarah	84,5	29,6	28,3	14,6	78,1	6,4	0,0
5	Kota Jantho	77,5	28,8	11,7	10,1	46,5	19,2	11,8
6	Pulo Aceh	72,4	18,7	13,8	36,9	4,9	62,2	5,2
7	Ingin Jaya	69,8	23,0	28,8	12,9	66,6	3,1	0,0
8	Lembah Seulawah	66,6	2,3	18,6	9,6	27,5	28,5	9,7
9	Kuta Cot Glie	63,4	17,8	12,4	13,0	33,3	28,7	7,8
10	Sukamakmur	58,3	11,1	25,0	2,1	41,4	9,7	10,1
11	Peukan Bada	52,8	12,3	15,0	9,1	41,4	11,0	0,4
12	Kuta Baro	52,4	10,0	21,6	4,9	42,7	9,3	0,0
13	Kuta Malaka	44,6	24,6	4,1	4,5	33,0	0,2	8,4
14	Lhoknga	40,4	7,2	22,0	5,1	34,6	5,7	0,0
15	Mesjid Raya	38,6	3,9	15,3	12,4	28,2	8,0	0,2
16	Lhonng	36,6	1,0	12,5	9,2	24,8	11,2	0,5
17	Darussalam	35,2	14,7	13,9	1,8	31,5	3,7	0,0

18	Darul Kamal	32,0	1,7	11,4	1,0	15,5	14,2	2,3
19	Blang Bintang	29,8	4,2	15,0	2,5	20,8	8,6	0,0
20	Baitussalam	26,8	6,0	18,4	0,9	26,1	0,7	0,0
21	Simpang Tiga	25,2	11,9	4,7	2,7	18,9	4,8	1,5
22	Krueng Barona Jaya	17,9	9,1	4,3	2,0	16,3	1,5	0,0
23	Leupung	12,6	0,0	7,9	4,0	9,5	3,1	0,0
	Districts	330,4	387,0	244,1	317,7	761,9	330,2	62,4
	Province	68,2	33,7	11,2	57,8	3,1	1,7	0,0
	National	135,5	42,8	15,4	-	78,6	24,5	12,0
	Total	534,3	463,6	270,8	375,5	843,7	356,5	74,4

B. Identification of Regional Potential in Aceh Besar Regency

Crops

Based on gross regional regional income, agricultural products show the highest contributing factor for regional income, the growth rate of GDP in agriculture, forestry and fisheries, according to the business field in 2018 was 3,009,405.3 and in 2019 it was 3,132,479.9 (BPS 2020). Lowland rice production is the main producer in Aceh Besar regional income with an average production of 7.4 tonnes / hectare, with districts that are the highest producing rice production, namely in Indrapuri Sub-regency, which is 7.2 tonnes / hectare and Mesjid Raya Sub-regency being the lowest producer rice, namely 5.5 tonnes / hectare. According to Jhingan (2012) states that the agricultural sector in regional economic development is one of the important sectors as an effort to improve the welfare of society. The agricultural sector plays a role in providing food to meet increasing needs along with population growth, increasing demand for industrial products so that the need for expansion of the secondary and tertiary sectors, increasing foreign exchange for imports of capital goods for development through continuous export of agricultural products, increasing income village to be mobilized by the government, and improve the welfare of the rural people.

Tourism

Tourism in Aceh Besar district is expected to become a regional potential that can be a major factor in the rate of economic growth in Aceh Besar which can replace tax and agricultural aspects of local revenue. So it is hoped that the preparation of road planning and strategy handling in Aceh Besar Regency is expected to focus on areas that are potential areas such as tourist objects but have damaged road, the goal is to increase the ability to promote economic activities involving various sectors. The tourism activity sector in Aceh Besar is expected to be able to create jobs and increase income for the government and communities in the surrounding area. Aceh Besar Regency has at least 20 leading tourist objects that have the potential to be developed and are no less famous than tourist objects in Banda Aceh City and Sabang City.

Aceh Besar tourism object has its own characteristics and attractions, among the leading tourist objects are Pulo Aceh Sub-regency (marine tourism on Pulo Nipah and Mecusuar beaches); Lhoknga Sub-regency (Panatai Pulau Kapuk, Zoel Lampuuk Bungalow, Lhoknga Beach, Lampuuk Beach, and Babah Dua Lampuuk); Leupung Sub-regency (Sarah and Brayeun baths); Lhoong sub-regency (beach at the foot of Mount Grutee); Mesjid Raya Sub-regency (Ujung batee beach, white sand beach, and hot spring baths); Jhanto City Sub-regency (natural and cultural

tourism); Lembah Seulawah Sub-regency (pocut meurah intan forest park); Peukan Bada Sub-regency (Dutch heritage fort in Blang Kala Lambadeuk Village and Cut Nyak Dien House); Darul Kamal Sub-regency (Makam Raja-Raja); and Darul Imarah Sub-regency (mata ie hillside). Most of the tourist objects in Aceh Besar are natural attractions and cultural heritage, some of which are well known by domestic and foreign tourists. In addition, there are still more tourism icons in the Aceh Besar area which are also well-known and have the potential to be developed again, so the focus of handling plans for damaged road around superior and potential tourist objects is developed for more attention.

Like Lampuuk beach in Aceh Besar Regency, which is located in Aceh Province, which is the beach most visited by both domestic and foreign tourists. Based on data from the Aceh Besar Culture and Tourism Office (2018), local and foreign tourists reached 1,075,626 people with a growth of 4.75%, this is the highest number compared to tourist visits to other tourist objects in Aceh Besar. Sources of PAD Aceh Besar include the Aceh Besar Regional Financial Management Agency of Rp.88,804,103,300,000 billion, the Office of Investment and PTSP of Rp.600,000,000 million, the Office of Menengan Small Business Cooperatives and Trade Rp. 2,664,310,000 billion, the Youth Tourism Office. Sports Rp. 220,000,000 million, Transportation Service Rp. 260,000,000 million, Communication and Information Service Rp. 250,000,000 million, Agriculture Service Rp. 378,000,000 million, Marine and Fisheries Service Rp. 150,000,000 million, Department of Work General and Spatial Planning Rp. 400,000,000 million, Health Service Rp. 27,717,550,000 billion, RSUD Rp. 13,180,000 million, Environmental Service Rp. 575,000,000 million, Office of Manpower and Transmigration Rp. 30,000,000 million, The Community and Gampong Empowerment Service Rp. 100,000,000 million and the Baitul Mal Secretary Rp. 13,200,000 million.

According to Novitasari and Maryati (2015), it is found that increasing road length is an important production factor for districts / cities with low GRDP per capita and low Human Development Index (IPM). The regional economic development that occurs is expected to be a good economic development, where the real per capita gross national income (constant prices) must be higher than the population growth rate (Muta'ali 2014). Road construction is an activity that is very important in an effort to increase the economic growth of a region, in this case road construction will encourage increased productivity for production factors. Conversely, if the existence of the road is neglected, it will cause a decrease in productivity (Ma'ruf 2012).

C. Analysis of the Development Level of Aceh Besar Regency

The results of the analysis show that the sub-regency with hierarchy I only consist of 3 sub-regency, namely the Leupung, Pulo Aceh and Jantho City Sub-regency which are the administrative centers of the regional government, this hierarchy is seen from the sub-regency development index found from the results of the scalogram analysis by adding up 30 selected variables.

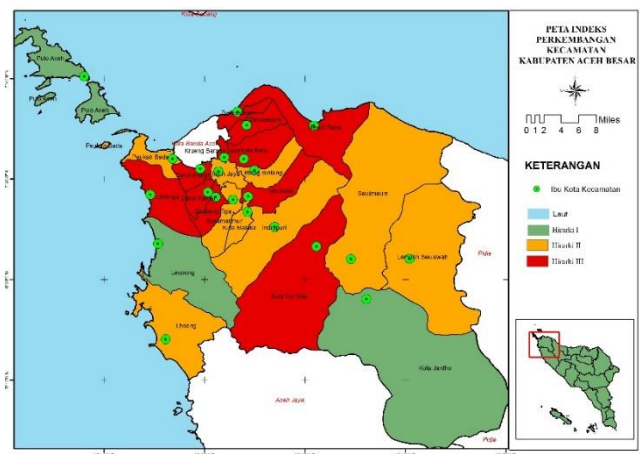


Figure 2: Regency Development Level Index Map

In the growth pole theory developed by Francois Perroux (Christofakis and Athanasios 2011) that the

growth of a region occurs at certain points or poles of the region so that it will lead to service centers for less developed areas (hinterland). Hierarchy I is characterized by a development index (IP) > 41.57 (mean IP plus 2 times the standard deviation of IP). The sub-regency that are classified in hierarchy I are determined by the number of availability of adequate facilities and infrastructure, then the sub-regency that are included in this hierarchy I (Sub-regency Jantho city, Leupung and Pulo Aceh). Areas with the most complete public facilities tend to be the center of the surrounding areas (Rustiadi and Panuju 2013). Hierarchy II is characterized by an IP between 26.12 (average IP) - 41.57, which is determined by the number of facilities and infrastructure available that is less than hierarchy I. Lembah Seulawah, Blang Bintang, Ingin Jaya, Suka Makmur, Kuta Malaka and Peukan Bada). Hierarchy III is characterized by IP < 26.12, which is determined by the relatively low number of facilities and infrastructure available compared to hierarchies I and II. Then for districts that are included in the third hierarchy, among others (Lhoknga, Kuta Cot Glie, Mesjid Raya, Darussalam, Baitussalam, Kuta Baro, Montasik, Krueng Barona Jaya, Simpang Tiga, Darul Imarah and Darul Kamal Sub-regency).

The level of development of an area can be reflected in the value of the Regency Development Index (IPK), the higher the IPK value, the more developed / advanced the area is compared to other regions, so that the area can become a service center for surrounding areas or for areas that have lower GPA scores (Riadi 2015).

D. Analytical Hierarchy Process (AHP)

AHP results show that tourism objects have a higher priority weight (28%) compared to the central government (22%), population density (21%), agricultural centers (16%), and markets (13%). This shows that the respondents prioritize the potential of tourism objects in determining the priority for handling the road in Aceh Besar Regency when viewed from the criteria for the potential of the area.

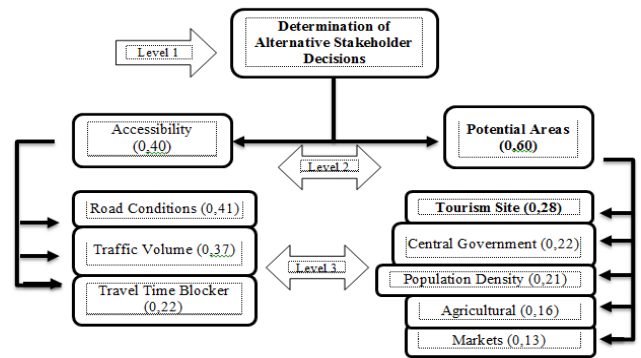


Figure 3: The Weight of the Stakeholder Decision Hierarchy

Overall, the results of the analysis of the hierarchical process on respondents' assessments in determining the scale of road network handling in Aceh Besar Regency, namely at level 2 the area potential has a higher weight than accessibility, and at level 3 tourism objects are prioritized from several criteria for regional potential. The working principle of AHP is the simplification of complex problems that are not structured, strategic and dynamic to then become parts and arranged in a hierarchical decision structure (Marimin 2010). For information on the results of the respondents' assessment in Aceh Besar Regency that have been analyzed using the AHP method, it can be seen in table IV below:

Table IV

Recapitulation of the Six Respondents' Answers to the Sub-Criteria Assessment of Regional Potentials

Respondents 1	Perceptions of Respondents				
	Tourism Site (b1)	Central Government (b2)	Markets (b3)	Agricultural (b4)	Population Density (b5)
Tourism Site (b1)	1,00	1,30	2,19	1,78	1,30
Central Government (b2)	0,81	1,00	1,71	1,41	1,05
Markets (b3)	0,50	0,62	1,00	0,88	0,64

Agricultural (b4)	0,57	0,72	1,23	1,00	0,74
Population Density (b5)	0,78	1,01	1,68	1,38	1,00

synthesis to get the road sections that are the focus of handling, indicators for road handling considerations on priority one are determined based on road conditions, namely heavy and light damage, alternative stakeholder decisions related to tourist objects and center of government, sub-regency development index in hierarchy I.

E. Road Management Plans and Strategies

Based on the results of the road handling directive matrix formulation that has been made a logical

TABLE V
Results of the Matrix for Preparation of Road Management Directions

No	Road Section Description	Regional Potential	Regency Development Index	Priority
1	Road Seulimeum-Jantho (9,68 Km)	Tourist Ojek and Government Center	hierarchy I	P 1
2	Sp. Road Nasional - Brayeun (1,13 Km)			
3	Sp. Meulingge - Ujong Puneung (3,60 Km)			
4	Sp. Balu - Rinon (8,20 Km)			
5	Sp. Road National - Sarah (1,26 Km)			
6	Indrapuri - Irigasi Kr. Jreu (4,20 Km)	Tourist Ojek and Government Center	hierarchy II	P 2
7	Sp. Road National - Lamsujen (1,90 Km)			
8	Saree - Leungah (12,75 Km)			
9	Road National - Bukit Permai (4,0 Km)	Dense Population	hierarchy I	P 3
10	Lamteuba - Lamteuba Droi (2,0 Km)	Dense Population	hierarchy II	P 4
11	Iboh - Ds. Teuladan (10,0 Km)			
12	Gampong Jantho - Transmigrasi Baru (3,0 Km)	Agriculture and Markets	hierarchy I	P 5
13	Market Indrapuri - Lamkabeu (8,80 Km)	Agriculture and Markets	hierarchy II	P 6

Based on stakeholder perceptions, seeing from the results of the formulation of handling the Aceh Besar Regency road which was found to be included in the development priority plan in the RTRW of Aceh Besar Regency, it can be concluded that some stakeholders agreed to the existing RTRW of Aceh Besar Regency. According to Sudarya (2013) based on the principle of balanced development where less developed areas need to be focused on development. These criteria are determined based on three priority regional selections, namely: (1) areas that have low economic diversity and balance, (2) areas that have relatively slow village development, and (3) areas that are not efficient in terms of resource utilization.

Revealing that an infrastructure is needed not only to increase competitiveness in order to encourage more investment, production and trade activities, but also to accelerate equitable development so that poverty and unemployment rates can be reduced (Saleh 2014). The length of the road will facilitate the distribution

of production factors in the form of goods and services, roads will also open up access from one area to another so that the GRDP will increase (Maqin 2011).

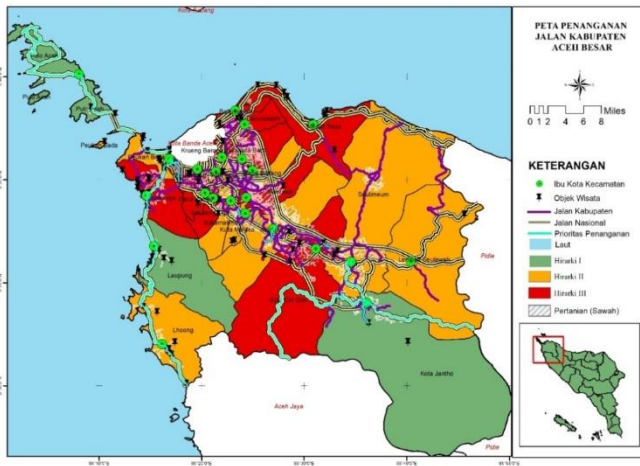


Figure 4: Road Management Map for Aceh Besar Regency

From Figure 4, it is explained that the road handling focus which is priority 1 is marked by the color of the blue roads that cross. From Figure 4 it can be explained that the handling of priority 1 roads is marked with blue roads, namely: (1) Seulimeum Road- Jantho; (2) Sp. National Road - Brayeun (Leupung); (3) Sp. National Road - Sarah (Leupung); (4) Sp. Balu - Rinon (Pulo Aceh); (5) Sp. Meulingge - Ujong Puneung (Pulo Aceh). The handling of roads with road maintenance activities is only intended to improve the services of these roads. For maintenance activities, the criteria that can be used are the criteria for road conditions, traffic flow, and regional development (Munthe 2015). The causes of road pavement construction damage include, among others, the thickness of the pavement layer that is no longer able to withstand traffic loads, failure in the implementation process such as the use of materials that are not in accordance with specifications, incomplete compaction, and the absence of drainage or a malfunctioning drainage system. Mbolian et al 2013).

F. Strategy for Road Management

The AWOT method applied in this study uses the Analytical Hierarchy Process (AHP) in determining the weighting of the SWOT analysis. The purpose of using Analytical Hierarchy Process (AHP) is to reduce subjectivity in weighting each factor from strengths,

weaknesses, opportunities and threats. The weight of each of these internal and external factors is also obtained by processing data that is supported by the Microsoft Excel program.

Internal Strategy Factor Analysis (IFAS)

According to Sedarmayanti (2014), the IFAS analysis of the internal factor matrix is used to determine internal factors related to strengths and weaknesses that are considered important, which aims to determine the level of importance and influence in the road management strategy in Aceh Besar Regency.

Table VI
Internal Strategy Factor Analysis (IFAS)

Internal strategy factors	Weight	Rating	Score
Strength:			
Tourist attraction	0,28	4	1,12
Central government	0,22	3	0,66
Weakness:			
Road Condition	0,41	3	1,23
Dense Population	0,21	2	0,42
Total			3,34

Based on the results of the Internal Strategy Factor matrix analysis in Table VI, the factors that become a strength in the development of the Aceh Besar region are the potential areas with a weight of 0.28, a rating of 4 and a total score of 1.12, which means that the potential of the area has a strong influence on regional development in Aceh Besar Regency, while the weakness factor that has a strong influence is the road condition with a weight of 0.41, a rating of 3 and a score of 1.23, so this indicates that the road condition factor is an obstacle to the development of regional potential in Aceh Besar Regency. Therefore, the strategy designed must be able to overcome

weaknesses by handling the road in each sector or access point for tourist attractions in Aceh Besar Regency which can then affect the growth of regional income.

External Strategy Factor Analysis (EFAS)

Analysis of external strategic factors or Strategic Factors Analysis Summary (EFAS) was carried out by compiling the EFAS matrix which then aims to determine the level of importance and influence in the road management strategy in Aceh Besar Regency.

Table VII
External Strategy Factor Analysis (EFAS)

External strategy factors	Weight	Rating	Score
Opportunities:			
Market	0,13	3	0,39
Agriculture	0,16	3	0,48
Threats:			
Accessibility	0,40	3	1,20
Traveling time	0,22	2	0,44
Total			2,51

From the results of the external factor evaluation matrix analysis, the opportunity factor that has the highest score is agricultural factors with a weight value of 0.16, a rating of 3 and a score of 0.48, this shows that the current agricultural sector has a very strong influence on GRDP (Regional Domestic Product). Gross), while the threat factor that has the greatest weight is accessibility with a value of 0.40, a rating of 3 and a score of 1.2, which means that accessibility has a strong influence on the development of the Aceh Besar region, so that it does not cover the local revenue from tourism objects.

The difference between the strength and weakness scores in the IFAS matrix is 0.13 and the difference between the opportunity and threat scores in the EFAS matrix is -1.23. The combination of values results in a position in Quadrant II as in Figure 5. According to Marimin (2008) in Purba (2017), business positions can be grouped into 4 quadrants, namely Quadrants I, II, III and IV. In quadrant I, the appropriate strategy to use is aggressive strategy, quadrant II diversification strategy, quadrant III turn around strategy and quadrant IV uses defensive strategy. The road handling policy strategy for the results of internal and external matrix analysis in regional development in Aceh Besar Regency is in quadrant II position, namely the ST (Strenght-Threarhs) diversification strategy is to minimize existing weaknesses and avoid possible threats. The handling strategies are as follows:

1. Road handling is carried out by the regional government of Aceh Besar Regency in developing regional potentials such as regional tourism objects, markets and agriculture.
2. The government focuses on building damaged road infrastructure for smooth accessibility.
3. The Aceh Besar Regency Government makes use of the private sector or investors in road management
4. Local governments aim to maintain road quality for convenient access to all areas.

IV.CONCLUSION

The existing road conditions in Aceh Besar District are in good and moderate condition, apart from that there are minor and heavy damage. While the type of surface has been paved, the rest is still gravel and soil. Most of the handling of roads in Aceh Besar Regency are in accordance with the existing potential areas, namely tourism and agricultural objects. The level of regional development, Jantho City, Leupung and Pulo Aceh Sub-regency are classified as hierarchy I, Lhoong, Indrapuri, Seulimeum, Lembah Seulawah,

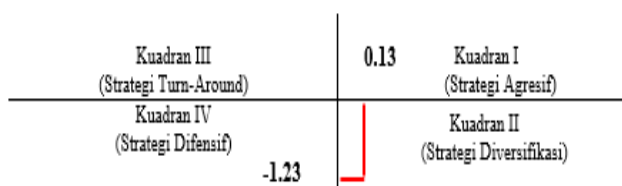


Figure 5: Space Analysis matrix

Blang Bintang, Ingin Jaya, Sukamakmur, Kuta Malaka and Peukan Bada Sub-regency are hierarchical II and Lhoknga Sub-regency, Kuta Cot Glie, Masjid Raya, Darussalam, Baitussalam, Kuta Baro, Montasik, Krueng Barona Jaya, Simpang Tiga, Darul Imarah and Darul Kamal in the third hierarchy. Handling of roads in Aceh Besar Regency is prioritized based on tourist objects, there are 5 sections handled. The road section handling strategy uses the S-T (Strenght-Threats) diversification strategy.

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