

Road Network Development Strategy in Supporting the Population Economic Improvement in Coastal Area of Waesama District, Buru Selatan Regency

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Abstract: Transportation in the process of developing an area is very important in realizing accessibility for social and economic activities of the community. This study aims to (1) identify the economic potential of coastal areas in terms of the variety of superior natural resources production in Waesama District, South Buru Regency, (2) analyze the marketing / sales patterns of natural resources production based on the origin of production and distribution objectives, (3) analyze the level of accessibility of the inner road network. Waesama District, South Buru Regency, (4) formulating a road network development strategy in support of improving the economy of the population of the coastal area of Waesama District, South Buru Regency. This research was conducted in South Buru Regency. The method used is descriptive, qualitative and quantitative analysis. The results of this study indicate that 1) Waesama District has the potential to develop superior products such as plantation crops, food crops, and horticulture and marine fisheries. 2) There are two forms of market chain for the marketing / selling of natural resources products, namely, first, residents sell directly to the market and secondly, residents sell directly to village or sub-district collectors who come to the local village. 3) The level of road network accessibility in Waesama District shows the level of accessibility is in the low category with service level A. 4) The appropriate road network development strategy is the construction and improvement of the bridge road network to increase accessibility and mobility of transportation services so that travel time and costs can be minimized, developing sea transportation infrastructure by increasing linkages between ports in sub-districts, regencies and provinces, providing strengthening of cooperative / BUMDES (Village Owned Enterprises) and UMKM (Micro small and Medium Enterprises) institutions to improve a business climate that is conducive to product development and marketing of agricultural, plantation and fishery products, strengthening domestic markets and market efficiency commodities as well as the development of regional superior commodity exports.

Keywords: Featured Commodities, Movement Patterns, Accessibility, Road Development Strategy

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I. Introduction

Transportation is a very important element in supporting the development and economic development of a region. Transportation plays a role in smoothing the wheels of the economy, driving the dynamics of development, supporting the mobility of people and goods/services and supporting regional development

Accelerating the development of an area will be very difficult without the support of good, reliable and targeted transportation infrastructure. Due to limited transportation, the potential for leading economic sectors will remain as a difficult potential to be developed, especially in newly developing areas such as South Buru Regency of Maluku Province.

South Buru Regency is the result of the division of Buru Regency based on Law Number 32 of 2008 concerning the formation of South Buru Regency. As a newly developed district, the construction of road network infrastructure is one of the requirements to improve the economy and welfare of the community. The construction and improvement of the road network will provide access to potential areas and encourage development in various sectors, especially the economic sector.

Waesama District is one of the coastal districts in South Buru Regency with an area of 724 km² and 11 villages, the majority of the population works as farmers and fishermen. In selling/marketing, it is very difficult for residents to sell agricultural and plantation products considering that the bridge road infrastructure in several villages has not been improved and there are still many bridges that have not been built which of course greatly

hampers the community's journey, during the rainy season many villages are isolated due to overflowing rivers so that the community who want to go to the city using sea transportation so it requires a lot of time and money.

In connection with this, the aim of this study is to identify economic potential, analyze marketing/sales patterns, measure the level of road network accessibility and develop a road network development strategy in Waesama District, South Buru Regency in supporting regional economic improvement.

II. The Methods

Research Location and Research Design

This research is descriptive, qualitative and quantitative analysis, in order to obtain a road network development strategy in supporting the economic improvement of the population in the coastal area of Waesama District, Buru Selatan Regency.

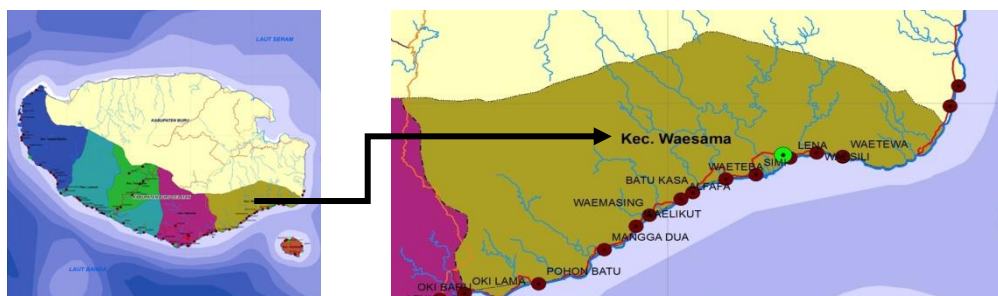


Figure 1. Waesama District, Buru Selatan Regency

Types and Sources of Data

The data collected are in the form of secondary and primary data. Secondary data were obtained from visits to agencies /institutions that have information on data and documents at the PUPR (Public Works and Public Housing Office), the Agriculture Office, the Transportation Service, BAPPEDA (Regional Development Agency), Buru Selatan Regency and Central Bureau of Statistics of Buru Selatan Regency. Primary data is obtained through interviews, observations, surveys, documentation and literature studies.

Analysis Technique

The data analysis technique uses a quantitative approach based on Location Quotient (LQ) analysis to identify regional superior commodities, Kepmenkimpraswil No.534/KPTS/ M/2001 to measure the level of accessibility of road network availability, the geographic accessibility formula (Rodrigues, J.P 2006) to analyze the level geographic accessibility and geographic potential of the road network, the Indonesian Highway Capacity Manual (IHCM, 1997) to analyze the movement of traffic volume, furthermore the SWOT analysis approach is used which aims to assess road performance and develop road network development strategies.

Location Quotient analysis is used to determine which commodity is superior in each subsector. An assessment of the Location Quotient (LQ) analysis is carried out by looking at the production value of a commodity against the overall value of the commodity in its sub-sector.

$$LQ = (pi/pt) / (Pi/Pt) \quad (1)$$

Where:

- LQ = Location Quotient
- pi = Waesama Production of commodity type i at the Waesama District level
- pt = Total commodity production at the Waesama District level
- Pi = Production of commodity type i at the level of South Buru Regency
- Pt = Production Total commodities at the regional level of South Buru Regency

Based on the Kepmenkimpraswil No. 534/ KPTS/M/2001, the level of accessibility of an area can be determined by the availability of a road network that is easily accessible to the public, measured by the ratio of length to area

$$Accessibility\ Index\ (IA) = \frac{The\ length\ of\ the\ road\ (km)}{Large\ area\ (km^2)} \quad (2)$$

Apart from the Kepmenkimpraswil No. 534/KPTS/M/2001, the level of accessibility can also be calculated using the geographic accessibility formula (Rodrigues, J.P. p. 30, 2006)

$$A(G) = \sum_i^x \left(\sum_j^x dij \right) \quad (3)$$

$$dij = L$$

Where:

A(G) = Geographic accessibility matrix

dij = The shortest road distance between locations i and j

n = Number of locations

Meanwhile, to calculate the potential for accessibility with the following formula:

$$A(P) = \sum_i^n Pi + \sum_j^n Pj/dij \quad (4)$$

Where:

A(P) = Potential accessibility matrix

dij = the distance between the i and j places (derived from the matrix value graph)

Pj = The attributes of place j, such as its residents, retail settlements, parking lots, etc.

n = Number of locations

Based on the Indonesian Highway Capacity Manual (IHCM, 1997), the formula for calculating the capacity of a road section in an urban area is shown in the following equation

$$C = Co \times FCw \times FCsp \times FCsf \times FCcs \quad (\text{pcu/hour}) \quad (5)$$

Where:

C = Capacity (pcu/jam)

Co = Basic capacity (pcu/ hour)

FCw = Traffic lane width adjustment factor

FCsp = Direction separation adjustment factor

FCsf = Side drag adjustment factor

FCcs = City size adjustment factor

For calculating the level of road service is done by calculating the degree of saturation The degree of saturation (DS) value does not exceed the acceptable value (DS <0.75). The degree of saturation is calculated using traffic flow and capacity and is expressed in the following equation.

$$DS = \frac{Q}{C} \quad (6)$$

Where:

Q = Traffic volume (pcu/hour)

C = Capacity (pcu/hour)

DS = degree of saturation

III. The Results

Regional Economic Potential

Regional Leading Products (RLP) owned by Waesama District, Buru Selatan Regency based on the results of the Location Quotient Analysis (LQ) and after being compared with the production results at the levels of South Buru Regency and Maluku Province, it was found that Waesama District had superior commodities from the plantation sub-sector, namely cloves, The food crops sub-sector is cassava and corn, the horticulture 'vegetables' sub-sector is chilies and the horticulture 'fruits' sub-sector is citrus and pineapple, besides the fisheries sub-sector is marine fish catch products, as in Table 1.

Table 1. Main Commodities of Waesama District, Buru Selatan Regency

Sub sector	Featured Commodities	Waesama District Production	Location Quotient (LQ)	
			Buru Selatan Regency	Maluku Province
Plantantion	Clove	1952,25	1,21	1,50
Agriculture	Cassava	818	1,20	1,31

	Corn	1310	1,24	1,03
Horticulture (vegetables)	Chili	50,1	2,32	2,13
Horticulture (fruits)	Orange	19	1,53	3,56
	Pineapple	19	1,62	2,93
Fishery	Sea food	7440,25	1,06	1,07

Marketing/Sales Movement Patterns

The movement pattern in an area is closely related to the center of generation and attraction in that region. The movement of people and goods from their place of origin to their destination is actually an option; this decision is made by considering several factors such as time, distance, efficiency, cost, safety and comfort.

There are two market chains for the marketing mechanism for agricultural products, especially for plantation crops, food crops, horticulture and fisheries. The first form is that the population sells directly to the market, and the second form, the population sells to village or sub-district traders who come to the local village, (See in Table 2).

Table 2. Forms of Marketing of Agricultural Products in Buru Selatan Regency

Types of Agricultural Products	Forms of marketing			
	Village Traders	District Traders	District Traders	Inter Island Traders
Food Crops and Horticulture (tubers, vegetables, fruits)	√	√		
Plantation crops (cloves and coconut)	√	√	√	√

The second form of marketing chain is generally the PAP (Inter-island Traders) who come to buy products from farmers such as cloves and coconuts. Then it is sold back to the regency city or directly marketed outside the area (Ambon, Makassar and Surabaya). The difference between the selling price 'share' at the farmer level and the trader (Inter-island Traders and Producers - village traders) is quite striking, namely the difference of IDR 5,000 to IDR 10,000).

Most of the marketed agricultural products have not been processed. The marketing channels for agricultural products are carried out by sea and land routes with long distances and low selling prices. The selling time of horticultural commodities (vegetables and fruits) depends on the season and the needs of each farmer family

For fishery production products in Waesama District, fishing communities in the fishing business currently still use traditional equipment. This can be seen from the use of fishing fleets, which are generally small in size. For fishing communities who have motorized boats in large catches, they are usually marketed directly in Namrole District because fish storage (cold storage) is only in Namrole District.

In addition to the road network, Waesama District already has a port and boat moorings to facilitate the crossing flow of goods/services distribution between sub-districts and from village to village. For the port in Waesama District, it was built in 2015 but until now it has not been used due to obstacles to land acquisition, many of the boat moorings have been damaged due to the impact of high waves.

Road Network Accessibility Level

Referring to the national transportation system and Kepmenkimpraswil No. 534/KPTS/M/2001, that the level of accessibility of an area can be measured by the ratio between the length of the entire road network and the area served. The area of Waesama Subdistrict has a population density of 21.33 people/km², which has an accessibility index of 0.095 which is greater than the required accessibility index of MSS Kepmenkimpraswil > 0.05 with a very low population density <100 people/km².

Table 3. Indicators of Availability of Regional Road Infrastructure

Territory	Existing Conditions				The Level of Accessibility			
	Population Density (Km ² / Person)	Area (People / Km ²)	Road Network (Province + Regency) (Km)	Asphalt Road (Province + Regency) (Km)	Accessibility Index (Road Network)	Asphalt Road Accessibility Index	Population Density (People/ Km ²)	Accessibility Index
Buru South Regent	15,13	5.060,00	474,86	97,81	0,094	0,019	Very low < 100	> 0,05
Namrole District	61,97	326,00	110,54	47,44	0,339	0,146	Very low < 100	> 0,05
Waesama District	21,33	724,00	44,87	42,47	0,062	0,059	Very low < 100	> 0,05
Leksula District	7,79	1.899,61	169,33	7,90	0,089	0,004	Very low < 100	> 0,05
Kepala Madan District	9,74	1.276,00	40,70	0	0,032	0	Very low < 100	< 0,05
Ambalau District	31,23	306,00	40,97	0	0,134	0	Very low < 100	> 0,05
Fena Fafan District	7,82	528,39	61,05	0	0,116	0	Very low < 100	> 0,05

Source: NSPM (Kepmenkimpraswil No. 534/PTSPM/M/2001)

Meanwhile, the accessibility index for each village in Waesama District, South Buru Regency ranges from 0.01 to 0.82, so it still meets the minimum service standards. The largest accessibility index is found in Batu Kasa Village, which is 0.82 km/km², meaning that one kilometer of road serves 1.22 km² of area. This is influenced by the ratio between the total road length of 3.5 km and the land area factor of 4.27 km². Meanwhile, the village with a low accessibility index is in Waetawa Village, which is 0.01 km/km², meaning that one kilometer of road serves 74.80 km² of area. Based on the results of the calculations in Table 4.

Table 4. Accessibility Index per Village in Waesama District, Buru Selatan Regency

Village Name	Population Density (People / Km ²)	Road Length (Km)	Area (Km ²)	Accessibility Index (Km/Km ²)	MSS
Hote	148,45	1,6	5,16	0,31	> 0,15
Pohon Batu	60,02	5,3	21,76	0,24	> 0,15
Wamsisi	24,73	6,5	109,64	0,06	< 0,15
Waelikut	14,79	7,35	95,13	0,08	< 0,15
Waemasing	174,91	2,2	5,70	0,39	> 0,15
Batu Kasa	195,78	3,5	4,27	0,82	> 0,15
Waeteba	7,59	4,62	119,50	0,04	> 0,15
Simi	65,15	3,2	25,02	0,13	< 0,15
Lena	67,11	3,7	26,82	0,14	< 0,15
Waesili	12,87	2,7	124,00	0,02	< 0,15
Waetawa	7,49	2,5	187,00	0,01	< 0,15

Source: Analysis results, 2020

In terms of the level of geographic accessibility, the most accessible places show that the highest level of geographic accessibility is in Waeteba Village at 10.13, Batu Kasa Village at 10.42 and Waemasing Village at 10.97 and for the very low geographic accessibility level value in Hote Village of 23.27 and Stone Tree Village, amounting to 21.80. Based on the results of the calculations in Table 5.

Table 5. Geographical Accessibility Level of Road Network in Waesama District, South Buru Regency

Village	Hote	Pohon Batu	Wamsisi	Waelikut	Waemasing	Batu Kasa	Waeteba	Simi	Lena	Waesili	Waetawa	Σ/n
Hote	0	5,3	11,8	19,15	21,35	24,85	29,47	32,67	36,37	39,07	41,57	23,27
Pohon Batu	5,3	0	6,5	13,85	16,05	19,55	24,17	27,37	31,07	33,77	36,27	21,80
Wamsisi	11,8	6,5	0	7,35	9,55	13,05	17,67	20,87	24,57	27,27	29,77	17,83
Waelikut	19,15	13,85	7,35	0	2,2	5,70	10,32	13,52	17,22	19,92	22,42	14,03
Waemasing	21,35	16,05	9,55	2,2	0	3,5	8,12	11,32	15,02	17,72	20,22	10,97
Batu Kasa	24,85	19,55	13,05	5,70	3,5	0	4,62	7,82	11,52	14,22	16,72	10,42
Waeteba	29,47	24,17	17,67	10,32	8,12	4,62	0	3,2	6,90	9,60	12,10	10,13
Simi	32,67	27,37	20,87	13,52	11,32	7,82	3,2	0	3,7	6,40	8,90	10,51
Lena	36,37	31,07	24,57	17,22	15,02	11,52	6,90	3,7	0	2,7	5,20	11,31
Waesili	39,07	33,77	27,27	19,92	17,72	14,22	9,60	6,40	2,7	0	2,5	14,43
Waetawa	41,57	36,27	29,77	22,42	20,22	16,72	12,10	8,90	5,20	2,5	0	16,31
Σ/n	21,93	18,40	15,15	12,70	12,33	12,33	13,10	14,17	16,02	17,82	19,90	150,60

Source: Analysis results, 2020

For the lowest potential value of Geographical Accessibility in Hote village and Batu Kasa village, because Hote village has a greater attractiveness than driving force (2,721.29 to 1,669.43), this is because Hote village is close to the growth center or district capital.

For Waetawa village, Simi village and Waesili village have less traction than the driving force, based on the results of the calculations in Table 6 because the conditions in the three villages have a geographic location on the outskirts far from the growth center or the capital of the sub-district and the district capital besides that access The road sections are still in the form of dirt/gravel pavement and connecting bridges have not been built so that during the rainy season the rivers overflow causing residents to travel by sea transportation in the form of speedboats which require a lot of time and money. Graphically, the potential for geographic accessibility in Waesama District can be seen in Figure 3.

Table 6. Potential Geographical Accessibility of Road Network in Waesama District, Buru Selatan Regency

Village	Hote	Stone Tree	Wamsisi	Waelikut	Waemasing	Batu Kasa	Waeteba	Simi	Lena	Waesili	Waetawa	Σj
Hote	766,00	144,53	64,92	40,00	35,88	30,82	25,99	23,45	21,06	19,61	18,43	1.669,43
Pohon Batu	246,42	1.306	200,92	94,30	81,37	66,80	54,03	47,72	42,03	38,67	36,01	2.403,55
Wamsisi	229,75	417,08	2.711,00	368,84	283,87	207,74	153,42	129,90	110,34	99,41	91,06	5.004,73
Waelikut	73,47	101,59	191,43	1.407,00	639,55	246,84	136,34	104,07	81,71	70,63	62,76	3.183,19
Waemasing	46,70	62,12	104,40	453,18	997,00	284,86	122,78	88,07	66,38	56,26	49,31	2.374,50
Batu Kasa	33,64	42,76	64,06	146,67	238,86	836,00	180,95	106,91	72,57	58,79	50,00	1.862,81
Waeteba	30,78	37,53	51,33	87,89	111,70	196,32	907,00	283,44	131,45	94,48	74,96	2.036,06
Simi	49,89	59,55	78,10	120,56	143,99	208,44	509,38	1.630	440,54	254,69	183,15	3.725,86
Lena	36,37	31,07	24,57	17,22	15,02	11,52	6,90	3,70	1.800,00	2,70	5,20	1.992,24
Waesili	40,85	47,26	58,53	80,12	90,07	112,24	166,25	249,38	591,11	1.596	638,40	3.709,44
Waetawa	33,68	38,60	47,03	62,44	69,24	83,73	115,70	157,30	269,23	560	1.400	2.869,39
Σi	2.721,29	2.550,98	3.731,65	2.965,64	2.785,59	2.353,90	2.437,13	2.876,86	3.674,19	2.895,85	2.651,29	30.831,19

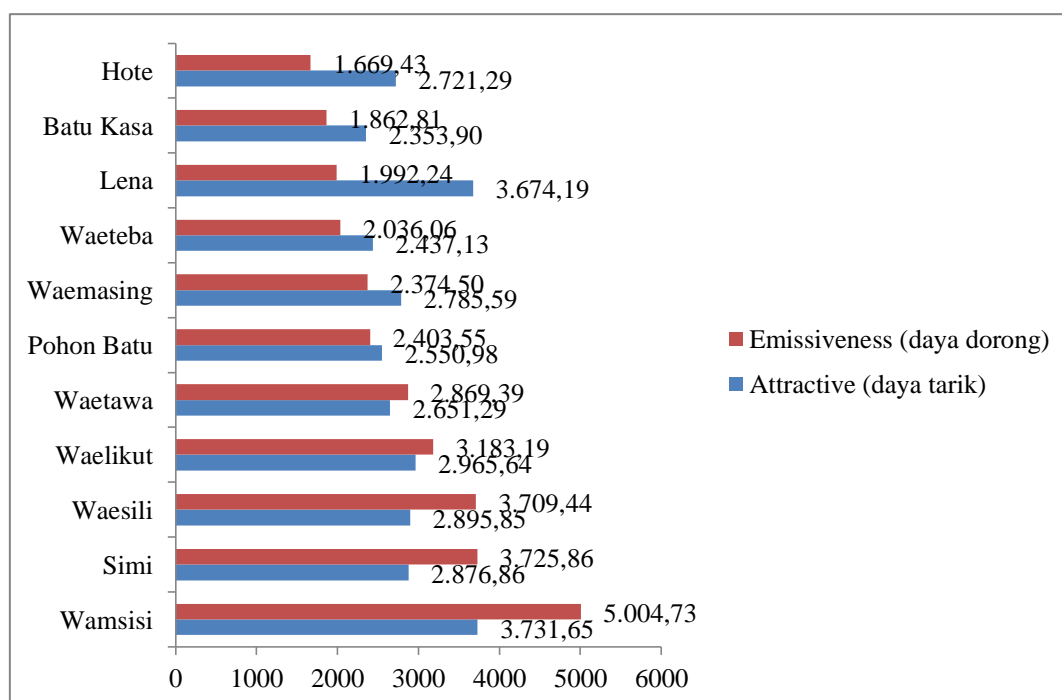


Figure 3. Potential Geographical Accessibility of Road Network in Waesama District, South Buru Regency
Source: Analysis results, 2020

To improve the potential value of geographic accessibility, it is necessary to build and improve the bridge road network, such as the Wamsisi - Waetawa road section, the construction and improvement of the bridge road network on this section needs to be carried out to streamline the flow of mobilization and shorten the distance to other areas such as to the sub-district capital the district capital, so that by itself the potential value of accessibility in Simi, Waesili and Waetawa villages will be better.

Apart from the accessibility aspect, the Minimum Service Standards for roads are also measured from the aspect of mobility. Mobility is an important factor in supporting the movement of people in meeting their needs. This factor is useful in facilitating movement from the area of origin to the destination given the adequacy of the total existing road network in the area with the population expressed in km/1000 people. For more details, see Table 7.

Table 7. Mobility Index per Village in Waesama District, Buru Selatan Regency

Village	Road Length (Km)	Total Population (Soul)	Mobility (Km/1000 people)
Hote	1,6	766	2,09
Pohon Batu	5,3	1.306	4,06
Wamsisi	6,5	2.711	2,40
Waelikut	7,35	1.407	5,22
Waemasing	2,2	997	2,21
Batu Kasa	3,5	836	4,19
Waeteba	4,62	907	5,09
Simi	3,2	1.630	1,96
Lena	3,7	1.800	2,06
Waesili	2,7	1.596	1,69
Waetawa	2,5	1.400	1,79

Source: Analysis results, 2020

Based on the calculation of Table 7, it shows that the greatest mobility is in Waesili Village with a mobility value of 1.69 km/1000 people, which means that one kilometer of road serves 591 people. This is influenced by the total length of 2.7 km of roads serving 1,596 residents. The high level of mobility in Waesili Village is not only influenced by the high population density. Meanwhile, the smallest mobility is in Waelikut Village, which is 5.22 km/1000 people, meaning that one kilometer of road serves 191 people. This is influenced by the total length of 7.35 km of roads serving 1407 residents.

Road Network Capacity

Traffic volume calculations are carried out on the main road sections that support the movement of production products that connect potential sub-districts. The calculation of traffic volume is carried out by using traffic counting on the sections that have been determined and become the main route for the transportation of production products.

When viewed in terms of capacity to accommodate the existing traffic volume, the Sp.Modanmohe-Namrole roads and Oki Lama - Wamsisi roads, which are routes of movement between villages and between sub-districts and between districts, are still adequate, due to the volume of traffic is still low. This can be seen from the comparison between the volume of traffic and the capacity of several roads as described in Tables 8 and 9. Whereas with the degree of saturation value <0.6, the road sections in terms of capacity have a service level of A which indicates that the road is free flow, low volume, high speed and the driver can choose the desired speed.

Table 8. Traffic Volume on Several Roads Resulting Movement Route Production in Waesama District, South Buru Regency

Roads	Movement Direction	Vehicle Type (pcu/Hour)			Total Flow (pcu / Hour)	Total 2 Directions (pcu/Hour)
		Motorcycle	Light Vehicle	Heavy vehicle		
SP. Modanmohe (Namlea) - Namrole	Namrole	36	11	0	47	401
	Oki Lama-Wamsisi	294	38	22	354	
SP. Modanmohe-Namrole - Oki Lama (Wamsisi-Waetawa)	Modanmohe (Namlea)	101	28	11	140	162
	Oki Lama-Wamsisi	16	5	1	22	
Oki Lama(Wamsisi-Waetawa) - Modanmohe (Namlea)	Namrole	263	48	6	317	419
	Modanmohe (Namlea)	69	24	9	102	

Source: Analysis results, 2020

Table 9. Capacity and Service Level of Movement Route Roads

Ruas Jalan	Base Capacity (Co)	Adjustment Factor			Capacity C (pcu/ Hour)	Traffic Flow Q (pcu / Hour)	Degree of Saturation Ds = Q/C	Service Level
		Lane Width (FCw)	Direction Separator (FCsp)	Side Barriers (FCsf)				
SP. Modanmohe (Namlea) - Namrole	3100	0,91	1,00	1,00	2821	401	0,14	A
SP. Modanmohe-Namrole - Oki Lama (Wamsisi-Waetawa)	3100	0,91	1,00	1,00	2821	162	0,06	A
Oki Lama (Wamsisi-Waetawa) - Modanmohe (Namlea)	2900	0,91	1,00	1,00	2636	419	0,16	A

Source: Analysis results, 2020

Although currently the road capacity is still adequate, in terms of speed and comfort, several road sections still need to be improved in terms of surface type, where some roads still have dirt roads, gravel roads, and are in a light or heavily damaged condition and there are still many bridges.

For the conditions of roadside activities at certain points, especially in residential areas which are quite disturbing to traffic flow, for example, the road is often used as a parking lot and pedestrians because there are no sidewalks besides that there are still many residents who use part of the road body to dry their plantation products, such as cloves, coconut and chocolate.

Road Network Development Strategy

Based on the results of the SWOT weighting, it can be seen that the position of the road network development strategy in supporting the economic improvement of the population of the coastal area of Waesama District, South Buru Regency is located in Quadrant III, namely the coordinate point (-0.42, 0.52) in the WO strategy. This shows that the development of the road network in South Buru Regency identifies a strategy to minimize weaknesses by taking advantage of existing opportunities, (See in Table 10).

Table 10. SWOT Analysis Matrix

		Strength (S)		Weakness (W)		
Internal factors	a.	High road network accessibility and mobility	a.	Coordination between related agencies is still low		
	b.	Wealth of natural resources that can be developed for the welfare of the community	b.	Limited regional development costs		
External factors	c.	Rural based development focus	c.	The quality of human resources is still low		
	d.	strong commitment from the government in accelerating regional development	d.	lack of social and public facilities		
			e.	limited condition of transportation and transportation infrastructure		
			f.	It takes a lot of time and travel costs		
	Opportunity(O)		Strategy (S-O)		Strategy (W-O)	
	a.	Law No.32 of 2004 concerning Local Government	a.	Improved road network accessibility for the Wamsisi - Waetawa section	a.	Sharing of financing between local and central government
c.	Law No. 38 of 2004 concerning Road	b.	Improved accessibility of the road network of the Sp.Modanmohe - Namrole - Oki Lama segment	b.	Construction and development of social and public facilities to increase community mobility	
d.	Government Regulation No. 34 of 2006 regarding the road	c.	Provide strengthening of cooperative / BUMDES (Village Owned Enterprises) and UMKM institutions to improve a conducive business climate in product development and marketing of agricultural, plantation and fishery products	c.	Construction and improvement of road and bridge infrastructure quality	
d.	RTRW, RPJMD, RPJPD Buru Selatan Regency	d.	Strengthening the domestic market and the efficiency of the commodity market as well as the development of regional superior commodity exports	d.	Develop sea transportation infrastructure by increasing linkages between sub-district, regency and provincial ports	
e.	Trade prospects between regions			e.	Increased cooperation with investors	

Threat (T)	Strategy (S-T)	Strategy (W-T)
a. Local government budget limitations	a. Development of farm roads to potential areas to support regional economic improvement	a. Sharing of financing between local and central government
b. The facilities and infrastructure for land and sea transportation are inadequate in supporting increased production and regional potential yields.	b. Increasing the allocation of funds to support the development of the road network in Waesama District	b. Empowering the community to support economic improvement
c. Regional growth is slow	c. Developing the optimal use of natural resources and the environment	c. Development of road network infrastructure and facilities to improve accessibility between regions
d. Low ability to do business and community income on productivity and marketing of business products	d. Increase the participation and active role of the community in various fields of development	d. Applying the priority scale for the development of infrastructure and facilities that support the improvement of community welfare in coastal areas

Source: Analysis results, 2020

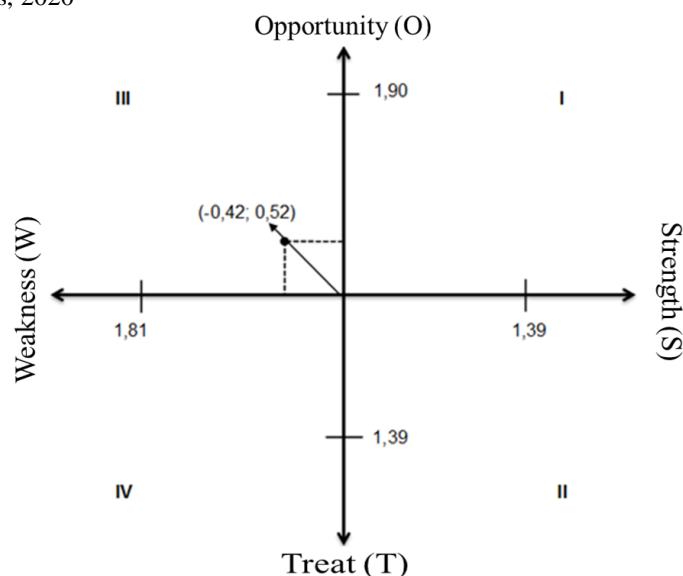


Figure 4. Position of Road Services in Waesama District in Support of Regional Economic Improvement in the SWOT Quadrant

Source: Analysis results, 2020

IV. Conclusion

Waesama District has the potential to develop superior products such as plantation crops, food, horticulture and marine fisheries. Main commodities from the plantation sector are cloves, the food crop sector/secondary crops, namely cassava and corn, the horticulture sector 'vegetables' in the form of chilies and the horticultural sector 'fruits' in the form of oranges and pineapples, apart from the fishery sector in the form of marine fish catches.

There are two forms of market chain marketing / selling of natural resources products, namely first, residents sell directly to the market, and secondly, residents sell directly to collectors in villages or sub-districts who come to the local village.

Agricultural products are generally marketed as unprocessed commodities. The marketing channels for agricultural products are carried out by sea and land routes with long distances and low selling prices.

For fishery products, fishing communities still use traditional tools to catch fish. This can be seen from the use of fishing fleets, which are generally small in size. For fishing communities who have motorized boats in large catches, they are usually marketed directly in Namrole District because fish storage 'cold storage' is only in Namrole District.

The level of road network accessibility shows the level of service A which shows the roads in Waesama District have low volume, free flow, high speed and the driver can choose the desired speed.

For the conditions of roadside activities at certain points, especially in residential areas which are quite disturbing to traffic flow, because the road body is used as a parking lot and pedestrians because there is no

sidewalk besides that residents use the road body to dry their plantation products such as cloves, coconut and chocolate

The appropriate road network development strategy is to increase the accessibility and mobility of transportation services so that travel time and costs can be minimized, develop sea transportation infrastructure by increasing the linkages between ports in sub-districts, districts, and provinces, providing strengthening of cooperative/BUMDES institutions, and MSMEs to improve a conducive business climate in product development and marketing of agricultural, plantation, and fishery products, strengthening domestic markets and efficiency of commodity markets as well as developing regional superior commodity exports.

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