

Accessibility And Mobility Of The Road Networks In Supporting The Regional Development in Mimika Regency

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ABSTRACT: The road network infrastructure in Mimika Regency is not yet in accordance with expectations, accessibility and mobility are still a constraint. Discloses accessibility levels, road network mobility and prospects to develop, based on surveys and field data collection with qualitative descriptive methods and Minimum Service Standards (MSS). The results show that the highest accessibility is in Kwamki Narama District and the lowest in the Far East Mimika District. The highest mobility is in Agimuga District and the lowest in the Far East Mimika District. The road network on which the prospect is developed lies in the liaison network between districts under the MSS to the city center.

KEYWORDS: Road Performance, Road Quality, Transportation Services.

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I INTRODUCTION

The availability of transportation infrastructure and facilities can reduce the isolation of a region, increase accessibility and mobility to support socio-economic activities and play an important role in supporting the integration of regional economic development and other sectors in order to generate community economy [1,2,3,4]. The dependence of population activity on transportation infrastructure especially road transport is still very high, roads play an important role in economic and regional development and are directed to the integration of inter and intra-modal services [5,6,7].

Accessibility is a measure of the individual's chances or convenience in achieving the desired activity using a particular transport system, measured by the ratio of the length of the road network and the area of service [8,9]. Mobility is the number of trips performed and represents the quality of movement through various transport links [10,11]. The accessibility of the relation to movement is the ease of achieving the objectives and refers to the ability to achieve the ultimate goal of transport activity, influenced by the quality of transport and land use systems and plays an important role in transport policy making [12,13,14,15,16]. Mobility in relation to movement is the ability to move and refer to the movement of people or goods [17,18].

Accessibility indicators [19,20] as value-added contribute to the well-being of a region and play an important role in the development and distribution of economic activities as well as integration of spatial and transport planning [21,22,23,24].

Mimika Regency is one of the regency within the province of Papua which is located about 536 km southwest of Jayapura City [25]. It currently consists of 18 districts/sub-districts, 133 villages, 19 villages with an area of 21,693.51 km² with a population of 205,591 people (9 persons/km²) with low density, and per capita GRDP reaching IDR 336.95 million [26,27]. the road network has not been able to meet the needs of the movement of the population from one place to another, visible from the road conditions that have not been adequate, especially in regency that bertopografi plateau and low in the form of land road conditions and not directly connected to the city center and away from the city center also experienced similar road conditions. The distance between districts to urban centers with transportation infrastructure that has not made the isolation of

the region and the movement of population activity is limited. To reach other districts and to the city center can be reached via river, sea, and air with high cost and long travel time.

The research is located in Mimika Regency Papua Province as in figure 1, implemented from January to March 2018 by using qualitative descriptive method and Minimum Service Standard (MSS). The data used are from the Department of Public Works and the Central Bureau of Statistics of Mimika. The analytical method used the index of accessibility index, mobility, and MSS based on the Norms, Standards, Guidelines and Manual (NSGM) [28].



Figure 1. Research Sitesin Mimika Regency, Papua Province, Indonesia

II RESULTS AND DISCUSSION

The results of accessibility index analysis, mobility and MSS obtained as follows:

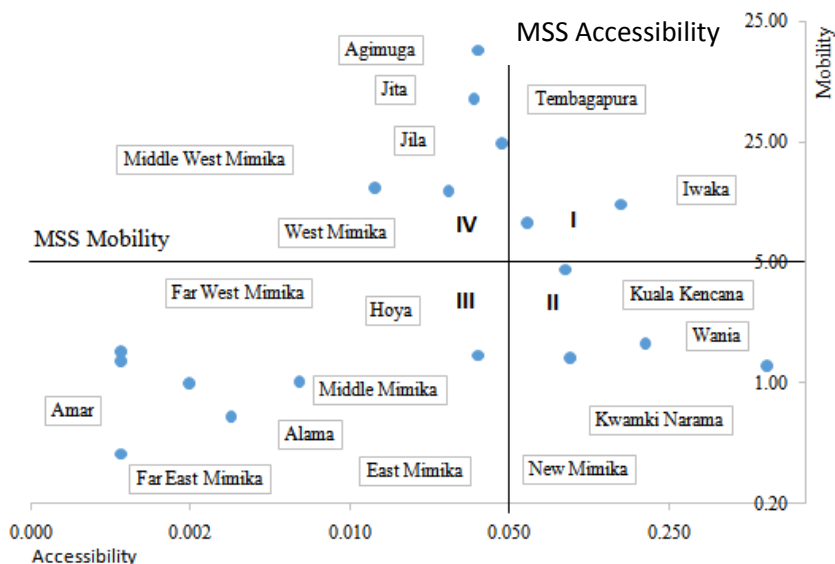


Figure 2. Performance of Accessibility and Mobility of Road Network (Result of analysis, 2018)

Based on Figure 2 it can be seen that accessibility performance and mobility of road network very greatly according to MSS respectively. Districts that are under MSS accessibility and mobility are very dominant as 7 districts, otherwise the districts that meet the MSS accessibility and mobility as much as 2 districts. Districts that meet the MSS accessibility but still under the MSS mobility of 4 districts, otherwise the districts that meet the MSS mobility but still under the MSS accessibility of 5 districts.

MSS accessibility based on road NSGM is above 0.05 with a population density of less than 100 persons/km², SPM mobility is above 5 with GRDP per capita above IDR 10 million/capita/year.

In the first quadrant of MSS accessibility and mobility have been fulfilled. There are only 2 districts that meet the MSS namely Iwaka District with accessibility index 0.157 and mobility 10.91; Tembagapura District with accessibility index 0.061 and mobility 8.37. These conditions are maintained and improved road quality for smooth accessibility and mobility of the road network.

In the second quadrant of MSS accessibility is fulfilled, mobility has not been fulfilled. There are 4 districts that meet MSS namely Kwamki Narama District with accessibility index 0.679 and mobility 1.24; Wania District with accessibility index 0.197 and mobility 1.67; New Mimika District with accessibility index 0.094 and mobility 1.38; and Kuala Kencana District with accessibility index of 0.089 and mobility of 4.56. This is due to population populations centered on all four districts. These conditions require the development of infrastructure through improving the quality of the road network to maintain the infrastructure that has been built in order to continue to meet the MSS and the development of the distribution of the population so as to attract residents to move that will increase the mobility of the population so that the MSS mobility can be met.

In the third quadrant of MSS accessibility and mobility have not been fulfilled. There are 7 districts that have not met the MSS namely Central Mimika Regency with accessibility index 0.006 and mobility 1.00; East Mimika District with accessibility index of 0.037 and mobility of 1.46, Alama District with accessibility index 0.003 and mobility 0.63, Hoya District with accessibility index 0.002 and mobility 0.98; Amar District with accessibility index 0.001 and mobility 1.33; Far West Mimika District from accessibility index 0.001 and mobility 1.51, and the Far East Mimika District with accessibility index 0.001 and mobility 0.39. This requires the attention and assistance of the local government in the development of its territory, because the service area is too broad and the population is uneven. The condition requires the improvement of infrastructure and the quality of the road network and the development of the distribution of the population so as to attract residents to move that can meet the MSS accessibility and mobility.

In the fourth quadrant of MSS mobility fulfilled, accessibility has not been fulfilled. There are 5 districts that fulfill MSS namely District of Agimuga with accessibility index 0.037 and mobility 85.18; Jita District with accessibility index 0.035 and mobility 43.86; Jila District with accessibility index 0.047 and mobility 24.04; West Mimika district with accessibility index 0.013 and mobility 13.37; and West Mimika District with accessibility index 0.027 and mobility 12.72. This is because the service area is too broad and the population is low-density. These conditions require the improvement of road network infrastructure that can reach the widest area of the service so as to affect the fulfillment of MSS accessibility.

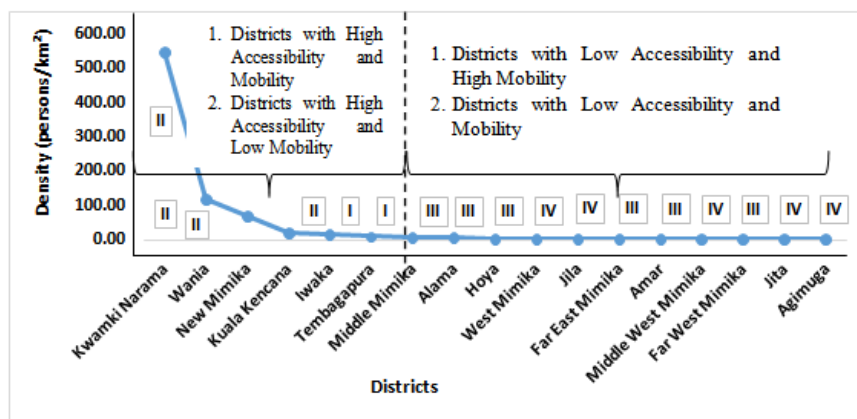


Figure 3. Population Density vs. Accessibility and Mobility

(see Diagram 2 in quadrants I, II, III, and IV)

Based on Figure 3, Highly accessibility and mobility districts have a population density of between 7 and 14 persons/km². Highly accessibility and low mobility districts have a population density of over 20 persons/km². Districts with low accessibility and high mobility have a population density of between 1 and 6 persons/km². The districts with low accessibility and mobility have a population density of less than 1 person/km².

Population density of less than 1 person/km² is in quadrant III that is, districts with low accessibility and mobility. Population density between 1 and 6 persons/km² is in quadrant IV i.e., Districts with low accessibility and high mobility. Population density between 7 to 14 persons/ km² is in the first quadrant is the districts with high accessibility and mobility. Population density above 20 persons/km² is in the second quadrant ie districts with high accessibility and low mobility.

III CONCLUSION AND RECOMMENDATION

Accessibility and mobility of the lowest area are in the Far East Mimika District, The highest accessibility is Kwamki Narama District and the highest mobility is in the District of Agimuga. The prospective road network was developed in districts located under Minimum Service Standards (MSS), including the Far East Mimika District.

Intensive road networking is needed in districts that have not met Minimum Service Standards (MSS) accessibility and mobility. Allocation of development budget and improvement of service of road network infrastructure that effectively and efficiently in support of Mimika Regency area development.

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