

The Study Of Strategic Road Network Financing In Supporting The Regional Development

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Abstract. Pacitan District has launched a Fast-Growing Strategic Area (KSCT) program to raise the local potential of tourism, marine, fisheries and agriculture. To support it, Strategic Road Network (SRN) was also planned. However, the financing effectiveness of SRN has not been studied. The purpose of this study is to analyze the distribution and financing effectiveness of SRN program. The study was conducted using a spatial approach by map the distribution of financial allocation that related to infratrucutre development in each subdistrict. The map was analyzed using the superimpose method with the distributon of SRN. Evaluation of the Effectiveness of financial program assessed based on the comparison of the budget allocation for road infrastructure development to the length of the SRN. the results of the study show that 9 out of 12 (75%) sub-districts have not been effective in planning the financing of SRN infrastructure development.

Keywords: strategic road network; financing; regional development

1 Introduction

Local government are faced with the problem of regional planning that is not in accordance with the potential of the region. Regional potential development planning is also affected by inequality in supporting infrastructure. In fact, the development of potential-based areas, especially for areas that have isolated geographical conditions, is very dependent on the connectivity between regions [1].

Pacitan District has great potential in the tourism, marine, fisheries and agriculture sectors. The local government launched a fast-growing strategic area (KSCT) program to raise these regional potential. The general problems faced in regional development in Pacitan Regency are gaps triggered by access and geographical factors [2]. In addition to the general problems caused by gaps. there are sectoral problems. For example, the policy in the Pacitan District Medium Term Development Plan has planned a food security improvement program. Even so, the program is still less specific. This will trigger uncertainty in the direction of regional development [3]. Regional growth centers with great potential in these sectors are supported by a strategic road network (SRN) that also planned as a major program.

The existing strategic road network in Pacitan District is purposively distributed in potential areas following the fast-growing strategic area development plan. However, the allocated budget has not been fully balanced and aligned. Funding for accessibility development must be sustainable. Accessibility development budget planning is very

important. To ensure this sustainability, an assessment of the effectiveness of development budgeting is needed. The urgency of these assessment is because the effectiveness of the planning will affect the resulting planning and seen from the planning capacity possessed [4].

The purpose of this study is to analyze the distribution and financing effectiveness of SRN program. Effectiveness in planning is a process in producing plans based on the characteristics of the planning process [5][6]. The implementation of the effectiveness assessment is an assessment of the running process indicators. The study was conducted using a spatial approach by map the distribution of financial allocation that related to infratrucute development in each subdistrict.

2 Study Area

The location that is the focus of this research is Pacitan district, East Java. Geographically, this district is located between 7.55° - 8.17° S and 110.55° - 111.25° E with an area of 1,389.87 km². Administratively, Pacitan District is divided into 12 sub-districts. Landforms at the study site vary from coastal areas on the south side, alluvial plains in the center, structurally denuded hills, to large karst areas. These variations make the uniqueness of the potential of natural resources owned.

Based on Regional Regulation No. 3 of 2010 about Spatial Plans and Areas for Pacitan District, designated settlement areas occupy at least 20% of the total area. Pacitan is also directed to be developed into a strategic area in accordance with the potential of the region.

Enlisted in Decree of the Pacitan Regent Nomor: 188.45/ 30. A /KPTS/ 408.21/2012, there are four four fast growing regions. First, Socio-Cultural Strategic Areas (tourism), are divided into four Tourism Development Areas (KPP); 1) karst nature tourism, 2) sight seeing and soft adventure tourism, 3) marine tourism and 4) historical tour. Marine tourism become the most developed because it big potential. [2] explained there are specifict attraction; the form of a beach and sea atmosphere, potential for culinary tourism, fish auctions and marine product processing centers.

Second region is Economic Strategic Area (Agropolitan), third is High Technology Strategic Area and the last is Marine and Fisheries Focused Region (Minapolitan). The problem of inequality is the most influential issue. This disparity appears on poverty number in agropolitan area (north) higher than poverty number in tourism area (south). The industry number data, however, is also seen much higher in tourism area [7]. Even though KSCT planning has been carried out, until 2018 the pace of economic growth for Pacitan District was slower when compared to East Java Province, with the agricultural sector being the largest contributor to GRDP (25%) [8][9].

3 Method

This study uses a spatial approach to assess the suitability of the financing plan. This study utilizes secondary data in the form of statistical data on regional program financing planning. Referring to [4], financial resources are one of the indicators in evaluating the effectiveness of planning. In line with this, the planning approach can be used to see the interrelationships between sectors [10].

The main spatial data used in the analysis is the 1:25,000 Scale RBI map of the Geospatial Information Agency. In addition, the Road Infrastructure Map supporting the strategic area of Pacitan District and the Pacitan District Layout Map from BAPPEDA in 2015 are also used.

3.1 Stastitcal Mapping of Financial Allocation

The allocation of strategic infrastructure financing is mapped to see the spatial distribution. Villages are used as mapping units. Financing values are visualized with dot symbols with variations in size based on financing class. there are five classes of infrastructure financing as presented in the Table 1.

Table 1. infrastructure financing based on the budget value

Class	Budget (in 100 mil)
Very High	>2.500
High	2.000 – 2.500
Quite High	1.500-2.000
Moderate	(1.000-1.500)
Quite Low	(500-1.000)
Low	(100-500)
Very Low	(<100)

3.2 Spatial Distribution of SRN

The distribution of strategic infrastructure financing allocations is overlaid with a map of the strategic road network. the length of each section is calculated and analyzed by quantifying it based on its comparison to the total length of the strategic road. the length of strategic roads in each sub-district illustrates the level of suitability of the budget.

3.3 Quantification of Effetiveness

The level of effectiveness of strategic infrastructure budgeting is calculated using the SRN index ratio (Ei) as listed in the formula below. the length of the SR segments in each financial class (LsS) which is rationed to the total length of the SRs in the district (LsD). The resulting values will later become three classes with the matching method. the expected output value is the class of financing effectiveness; high, moderate and low.

4 Result and Discussion

Pacitan District in 2017 is to allocate Rp. 137,666,969,000,00 for the development of strategic accessibility, especially SRN. The budget is used for the construction and upgrading of road classes. however, some “supporting” work, such as strengthening roads and

constructing tourism supporting facilities, are also budgeted for. The Allocation budget for SRN development in each sub-district listed in Table 2.

Table 2. Strategic Road Infrastructure budget allocation in Pacitan District

Sub-district	SRN Budget Allocation (Rp)
Arjosari	18.542.429.000
Bandar	8.285.000.000
Donorojo	11.905.865.000
Kebonagung	9.022.500.000
Nawangan	7.145.300.000
Ngadirojo	8.502.570.000
Pacitan	21.950.670.000
Pringkuku	19.711.855.000
Punung	10.204.780.000
Sudimoro	4.961.000.000
Tegalombo	7.164.000.000
Tulakan	7.271.000.000
Total	134.666.969.000

Pacitan subdistrict is the area with the highest infrastructure budget allocation with 21,950,760 followed by Pringkuku and Arjosari. The budget allocation is coherent with the strategic functions of these three sub-districts as part of KSCT. Sudimoro sub-district has the lowest infrastructure budget among other sub-districts, followed by Nawangan and Tegalombo. In fact, the budget allocation in the sub-district is concentrated in Sukorejo Village where there is a strategic state power plant project. Its distribution visualized in *Fig. 1*

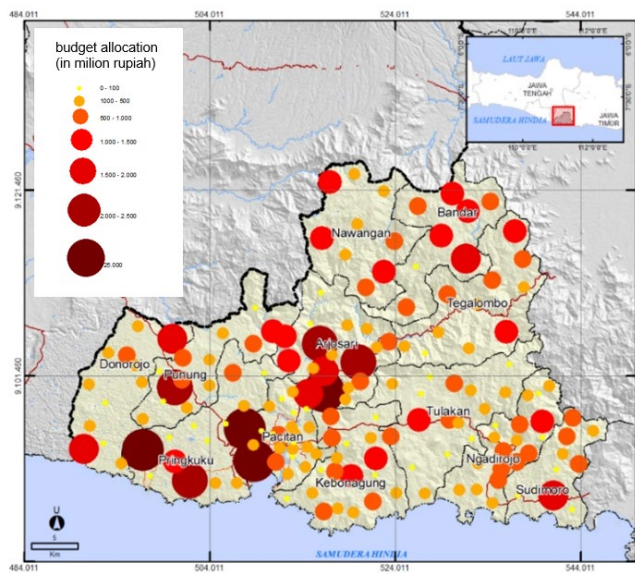


Fig. 1. Distribution of budget allocation in SRN infrastructure development

4.1 Financial Allocation of Strategic Road Network

Strategic road projects in Pacitan District in 2017 are 552.84 km long and non-strategic supporting roads are 209.16 km long. If it is classified based on its budget, then there are only 22.12 km which are worth more than 2 billion rupiah. On the other hand, the value of the low budget class (less than 500 million rupiah) dominates with a strategic road length of 157.76 km. This illustrates that the strategic road program has not been supported by a large budget. this is because many strategic road budgets are handled by the central government, especially for national roads. **Table 3** presents the length of strategic and non-strategic roads in each budget class.

Table 3. Strategic and non strategic road budgeting program

Budget (in 100 mil)	Non Strategic	Strategic	Total Length (km)
Very High	9,59	22,12	31,71
High	3,40	18,28	21,68
Quite High	1,21	31,91	33,12
Moderate	30,59	75,57	106,16
Quite Low	38,81	141,32	180,13
Low	59,13	157,76	216,90
Very Low (<100)	66,42	105,88	172,30
Total legth (km)	209,16	552,84	762,00

Based on the spatial analysis carried out, it can be seen the relationship between the distribution of strategic roads and its development budget in each sub-district (**Fig. 2**). Bandar and Pringkuku sub-districts, which are designated as strategic areas, have relatively high infrastructure development budgets for each village. This is quite coherent where the road infrastructure built in the area is dominated by roads with strategic functions. It is recorded that there are 63.38 km of strategic roads in Bandar District and 70.60 km in Pringkuku sub district. The facts are different in the Nawangan Subdistrict which is an agropolitan area, budgeting at medium and rather high class dominates, about 22, 27 km and 12.46 km.

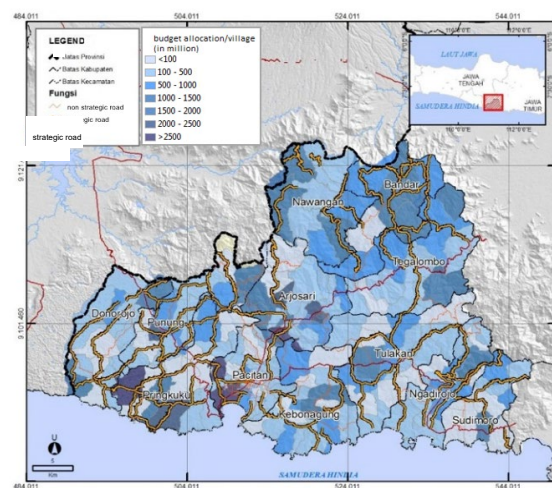


Fig. 2. Spatial distribution of strategic road in each subdistrict

However, the main road network that connects fast-growing areas actually has a minimal budget for road infrastructure, such as in the Tegalombo and Arjosari sub-districts. Likewise, the Sudimoro District that projected to become a strategic technology area, the infrastructure budgeting in each village only range from very low to low class. The length of roads with strategic functions in each sub-district in Pacitan District is presented in **Table 4**.

Table 4 budget of strategic roads infrastructure in each subdistrict

Sub District	Infrastructure Budget							Length (km)
	Very Low	Low	Quite Low	Moderate	Quite High	High	Very High	
Arjosari	11,72	2,97		4,87	0,79	2,67	1,98	25,00
Bandar	1,36		27,29	22,27	12,46			63,38
Donorojo	14,01	22,20	2,83		13,74			52,77
Kebonagung	7,60	16,61	6,96	3,04				34,22
Nawangan		9,59	8,75	27,07				45,41
Ngadirojo	3,91	19,43	19,69	6,42				49,44
Pacitan	6,77	15,35	3,93		1,41		11,52	39,00
Pringkuku	24,87	6,26	9,98	9,45		11,42	8,62	70,60
Punung	12,78	30,64	17,68			4,19		65,30
Sudimoro	10,52	4,41	7,50		3,51			25,94
Tegalombo		15,10	17,88					32,98
Tulakan	12,33	15,20	18,82	2,45				48,80
Length (km)	105,88	157,76	141,32	75,57	31,91	18,28	22,12	552,84

4.2 Financial Effectiveness

Based on the results of the analysis, the quantitative value can be read which describes the tendency of effectiveness. This is used as the basis for the final assessment of the effectiveness of the infrastructure budget for each sub-district. The results of the calculation of the budget effectiveness index are presented in the following matrix table.

Table 5 Pacitan District infrastructure budgeting effectiveness index

Sub District	Effectivity Index of SR Budget							Effectivity Value			Final Class
	Very Low	Low	Quite Low	Moderate	Quite High	High	Very High	Low	Moderate	High	
Arjosari	0.47	0.12	-	0.19	0.03	0.11	0.08	0.588	0.226	0.186	Low
Banda	0.02	-	0.43	0.35	0.2	-	-	0.02	0.979	-	Moder

Sub District	Effectivity Index of SR Budget						Effectivity Value			Final Class	
	Very Low	Low	Quite Low	Moderate	Quite High	High	Very High	Low	Moderate		High
Bandar								1			Moderate
Donorejo	0.27	0.42	0.05	-	0.26	-	-	0.686	0.314	-	Low
Kebo											
nagungan	0.22	0.49	0.2	0.09	-	-	-	0.707	0.292	-	Low
Nawangan	-	0.21	0.19	0.6	-	-	-	0.404	0.789	-	Moderate
Ngadirojo	0.08	0.39	0.4	0.13	-	-	-	0.472	0.528	-	Moderate
Pacitan	0.17	0.39	0.1	-	0.04	-	0.3	0.567	0.137	0.295	Low
Pringkuku	0.35	0.09	0.14	0.13	-	0.16	0.12	0.441	0.275	0.284	Low
Punung	0.2	0.47	0.27	-	-	0.06	-	0.665	0.271	0.064	Low
Sudimoro	0.41	0.17	0.29	-	0.14	-	-	0.576	0.424	-	Low
Tegalombo	-	0.46	0.54	-	-	-	-	1	-	-	Low
Tulakan	0.25	0.31	0.39	0.05	-	-	-	0.564	0.436	-	Low

There are only three sub-districts that has moderate financing effectiveness; Bandar, Nawangan and Ngadirojo. Infrastructure development in Pacitan District is oriented towards increasing access (affordability) to regional activity centers, especially strategic agropolitan and tourism areas. Bandar Sub-district is the most effective among other sub-districts in Pacitan District even though it has a budget that is only in the moderate class, with a value of 0.979. This illustrates that 97% of all roads that function strategically in the Bandar sub-district have an absorption budget of between 1 and 1.5 billion rupiah. Likewise in the Nawangan and Ngadirojo sub-districts where 78% and 52% of all roads with strategic functions in these sub-districts are supported by medium-class infrastructure budgets (1-5 billion rupiah). However, the planning and financing of infrastructure development supporting KSCT which has not been effective still needs to be improved, especially in the sub-districts of Sudimoro, Donorejo and Tegalombo. The spatial distribution of infrastructure budget effectiveness classes in Pacitan District is presented in the following map.

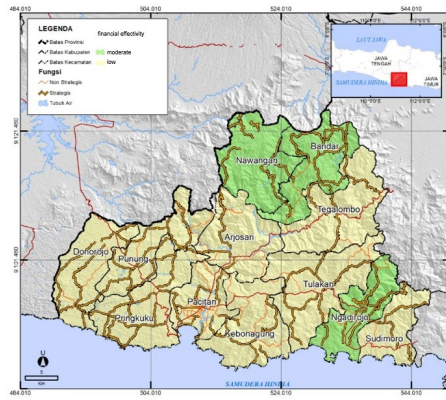


Fig. 3. Financing Effectiveness of SRN

5 Conclusion

Regional potential-based financing planning in Pacitan district is aligned with the direction of the programmed strategic area development. There are three of the 12 sub-districts that are quite effective in financing SRN, Bandar, Nawangan and Ngadirojo. but there are no sub-districts that are included in the effective class in SRN financing. The results of this study provide a suggestion for evaluating SRN financial program to focus more on connecting sub-districts between fast-growing regions.

Acknowledgments

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