

Analysis of Spatial Planning Effect on Regional Construction Performance in Waropen Papua, Indonesia

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Abstract— Several problems of spatial planning in Waropen, Papua indicate that the regional spatial planning arranged in 2012 did not make any positive contribution to the spatial problem solving. This study aims to investigate the spatial planning consistency in relation to the regional construction in Waropen, Papua. The method used was table analysis comparison continued by verbal logic. In addition, Principal Components Analysis (PCA) was used to investigate the performance of regional development, whereas map overlay was used to observe the Inter-Regional Context in urban planning arrangements. The result showed that the inconsistency of spatial planning declines the performance of regional development. The primary concerned problems are infrastructure, construction growth, economic growth, transportation, and property.

Index Terms— spatial planning, constructional performance

1. INTRODUCTION

Regional construction should be carried out through an integrated spatial planning in order to utilize the limited resources by creating a well-organized construction. Therefore, the planning and controlling processes of spatial utilization are inseparable systems and implemented in a cooperative and sustainable performance [1]. Spatial planning refers to a process of urban planning arrangements, including administrative/government area (province, regency, and city) and functional areas (watershed, protected areas, urban areas, and rural areas) as reflected in the urban planning document.

Spatial utilization is an operational form of spatial planning through land use, whereas spatial planning control is a monitoring and policing mechanism of spatial utilization based on licensing mechanism, monitoring mechanism, reporting mechanism, incentives and disincentives, compensation, evaluation mechanism, and sanctioning mechanism [2,3].

Several problems of the spatial planning in Waropen, Papua indicated that urban planning of Waropen, Papua arranged in 2010 did not make a positive contribution to solve the spatial planning problems caused by the inconsistency of spatial planning. This study attempts to investigate the consistency of spatial planning and its relation to the regional construction.

2. LITERATURE REVIEW

2.1 Development Policy

Development policy is closely related to the government function in a country or area accommodating various interests and problems of the community. Public policy is associated not only with the decrees issued by the government, but also the power to connect the government and the community (Dunn, 1998). In fact, the government is not the only executor with a role in policy-making. However, there are other parties involved in the process of formulating and implementing the policy, including the community, private sector, certain community group, and so forth [4].

2.2 Spatial

Space is a limited essential element in human life, divided into land space, air space, and earth space (Law No. 26 year 2007). The space is considered as an essential element since space is a place in which all activities and interests are performed by human [5]. On the other hand, the varied activities performed by human are possibly leading to the environmental damage (Muchsin, 2008). Therefore, spatial planning is required to accommodate all activities and interests without causing negative impacts [6, 7].

2.3. Development Gap

According to Anwar, there are several differences causing disparity between regions, including the difference in resource endowment, demography, human capital, location potency, accessibility and authority in decision-making, and market potency [4]. These factors generate differences in regional characteristics in terms of the development aspects, including developed region, growing region, less developed region, and undeveloped region.

The developed region has a characteristic as the center of growth, population, industry, government, and potential market [8,9]. The other characteristics include the high income level, high education level, high quality of human resources, and economic structure dominated by industry, service, and commercial sector. The growing region is characterized by the rapid growth lying under the developed region because of the excellent accessibility to the developed region. The less developed region is characterized by the low economic growth yet possessing unmanaged and unutilized natural resources. Moreover, the less developed region has low population density and education. The undeveloped region has two characteristics, including the absence of human resources or location potency, and with the presence of human resources or location potency.

3. METHOD

The method used was table analysis comparison continued by verbal logic. Map overlay was used to observe the Inter-Regional Context in urban planning arrangements. In addition, Principal Components Analysis (PCA) was used to investigate the regional development performance. The examined variables were infrastructure, facility, fulfillment of housing needs, construction growth, economic growth, transportation, and property. The respondents were 66 individuals in Waropen. The data were analyzed using MINITAB software version 16. Furthermore, verbal logic analysis was used to find out the relationship between consistency, spatial problems, and regional development performance.

4. RESULT

Principal Components Analysis (PCA) was used to obtain structural data explaining the interrelated aspects with spatial planning based on seven variables. Among the seven components, only two components with eigen value >1 were used to describe the structural data of spatial planning. The contributions of the first and second component in explaining the total diversity were 43.4 % and 24.1 % respectively, the cumulative contribution was 67.6%.

The PCA result showed that the first component contained five variables, including infrastructure, construction growth, economic growth, transportation, and property. The first component was essential since 43.4% of spatial planning problems were explained by this component. In accordance with the combination of coefficient calculation result of the primary component, infrastructure, economic growth, and transportation had a positive coefficient, either in the first component or second component. On the other hand, construction growth and property had a positive coefficient in the first component and negative coefficient in the second component. The second component consisted of two variables, including facility and fulfillment of housing needs.

Table 1. Principal Component Analysis (PCA) Result

Variable	PC1	PC2	PC3	PC4	PC5	PC6	PC7
Infrastructure	0.418	-0.301	-0.295	0.217	-0.598	0.461	-0.175
Facility	0.262	0.580	-0.208	0.178	-0.366	-0.604	-0.143
Housing	0.213	0.592	0.271	0.433	0.245	0.522	0.105
Construction	0.343	0.177	-0.676	-0.426	0.433	0.152	0.048
Economy	0.498	-0.265	0.128	0.132	0.048	-0.253	0.763
Transportation	0.453	-0.309	0.194	0.243	0.455	-0.234	-0.584
Property	0.375	0.158	0.534	-0.689	-0.226	0.092	-0.115
Eigen value	3.039	1.690	0.901	0.519	0.408	0.298	0.145

Proportion	0.434	0.241	0.129	0.074	0.058	0.043	0.021
Cumulative	0.434	0.676	0.804	0.878	0.937	0.979	1.000

Infrastructure aspect observes the access of road, electricity, clean water, and transportation [10,11]. Infrastructure aspect is closely related to transportation aspect and economic growth [12, 13]. The rapid economic growth in a region is likely to accommodate the activities of the community, including office activity, government, education, or service trade. Moreover, the region is likely to provide complete social and public facilities with accessibility. Nowadays, transportation aspect should be increased by the availability of public transportation.

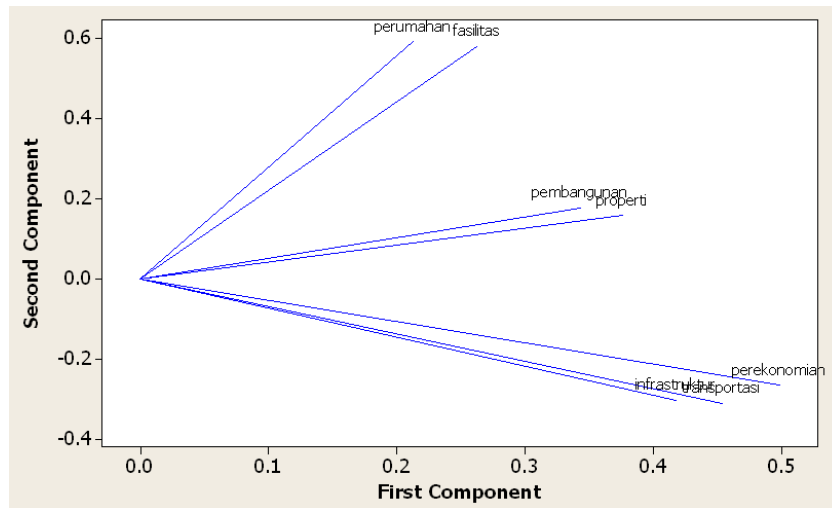


Figure 1. Structural Data of PCA Result

5. CONCLUSION

The result shows that the inconsistency of spatial planning generates several problems causing the decline in regional development performance. In addition, spatial planning without considering the Inter-Regional Context causes a poor performance of construction growth. In conclusion, a consistency in spatial planning is considered to be essential to optimize the achievement of spatial planning objectives. The primary problems, including infrastructure, economic growth, construction growth, transportation, and property, should be concerned more.

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