A Minapolitan Regional Development and Its Application to the Regency of Bombana, Southeast Sulawesi, Indonesia

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Abstract: - A minapolitan approach is a fishery-based rural development, a new concept of regional development in Indonesia. This approach is expected to strengthen the urban-rural linkages in economic activities and to reduce the gap of urban-rural development. In this study, we develop a minapolitan model based on the existing social and cultural conditions. The study focuses on; (i) analyzing both externally and internally the accessibility of the minapolitan area with its hinterlands; (ii) analyzing the performance of the minapolitan model on the regional economic development, and (iii) formulating a regional development model based on the minapolitan approach. Data were collected from the various local agencies in the district of Poleang and its hinterlands, in the regency of Bombana, Southeast Sulawesi, Indonesia, and analysed by using both qualitative and quantitative methods. The qualitative analysis is used to identify the performance variables of both minapolitan and regional economic development such as the availability of suitable area for the development of fishery production. For the quantitative analysis, a gravity analysis approach is used to determine the interaction between the minapolitan area and its hinterlands whereas the accessibility analysis is performed to measure how easy the movement of people or goods to a particular location. The regional configuration of the developed minapolitan model is analysed by using the principal component analysis (PCA). The result of regional potensial analysis shows that the subdistrict of Poleang is a potential area to be the center of the minapolitan region in the district of Bombana. Poleang is connected to and easily accessible either by other regions in Bombana or regions in other districts even other provinces such as the province of South Sulawesi. The Primary Component Analysis shows that only seven variables, out of 10 significant variables in the minapolitan performance system, was considered to determine the total variation and they can be used to cluster all districts in Bombana according to the performance of minapolitan system.

Key-Words: - Minapolation Model, Regional Development, Fishery Area

1. Introduction

The orientation of Indonesian economic development which emphasis more on the economic growth has made the rural-urban gap deeper. In practice, the rural economy does not gain an added value from urban areas and the rural areas are just, in fact, as a marketing line of primary commodities from rural to urban areas. Consequently, there is often a loss of benefit from the economic activities which makes the regional economic growth itself unfavorable [16, 21].

In the context of spatial development, the economic development has been concetrated in the growth centres in which the development is expected to give a trickle down effect on its hinterland. However, its net effect causes the depletion of massive backwash effect in rural areas.
In economic context, there is a massive transfer of resources from rural or coastal to urban areas eventhough urban areas also still play an important role in goods and services supply to the growth and productivity of fisheries.

Besides the backwash effect, the failure of rural or coastal development has also resulted in that more capital, market and welfare in rural areas are owned by urban communities. Consequently, rural communities become increasingly poorer and ignored [1, 5]. Yudhoyono [24] stated that the current approach of development has resulted in the poverty and unemployment in coastal areas. With this condition, rural communities in particular those in the coastal areas started to migrate to urban areas. Eventhough there is no guarantee that they will get jobs in urban areas, at least they have hopes to get a better income in cities [6, 23]. Therefore, the challenge in the development is how to integrate both fishery and rural development.

The regional development with a minapolitan model approach is difficult to be implemented if all stakeholders were not involved from the beginning to pasca project [6, 22]. Moreover, Satria [17] stated that the regional development with the minapolitan systems must cover; (1) the infrastructure development such as road construction, market, terminal, etc., (2) the development of human and social resources; the coordination among stakeholders and an understanding of the minapolitan concept, (3) technology aspects; fishery products processing and crockery[4, 15, 20].

Friedman and Tarin [8, 21] stated that the main issues faced with the development of such coastal-based model are as follows; i) if the causes are not dealt with fundamentally, the gap of the rural-urban development and prosperity will become wider, in particular, in the decentralization and autonomy era; ii) there is a weak link in economic activities both sectorally or spacially as it is shown in the lack of connection among the fishery sector (primary), manufacturing (secondary) and the supporting services (tertiary); iii) there is limited quality employment in the fisheries sector as well as in other economic activities such as in a small-scale industrial processing of fishery products, the supporting industries and other services; iv) the low quality of human resources in rural areas has declined the ability of institution and community-based organizations and made the coordination across all fields in the coastal development weak, in which all these have caused the degradation of natural resource (Satria 2009 and Salim 2010). This can be identified from the economic productivity of a region through its GDP and the rate of GDP growth per capita.

The growing and expanding gap is still one of the regional development problems that can not be dealt with properly. This gap can eventually cause problems in the context of macroeconomics. The potential conflicts among regions or territories become greater, especially in underdeveloped areas, and the interaction among regions becomes less. Also, the hinterland areas become weak due to the excessive exploitation of resources. Fauzi et al. (2005) and Conscience TW. (2010) said that a minapolitan system is necessary to be developed as an alternative coastal development approach as follows:

1. The inter-regional cooperation needs continuously to be developed until the conditions of mutual benefit are created. This cooperation aims to the efficiency of public services as well as other development through the joint of financing or sharing maintenance and management both facilities and infrastructure.
2. Improving the local economy by supporting the coastal development with the main activities such as rural road construction, terminals, traditional markets, and other supporting facilities, which enhance the development of agribusiness.
3. Improving the human resource quality of coastal areas so that their dependence on imported inputs become less through the management of natural resources.

The objectives of this study are three folds; (1) analyzing the regional potency in a minapolitan area, (2) analyzing the relationship between the performance of minapolitan system and the regional economic development, (3) formulating a model for regional development with minapolitan approach.

2. Method

This study was conducted in Bombana, Southeast Sulawesi Province, Indonesia, which covered the entire coastal region, from June to October 2011. Data were collected from various local agencies and the Central Bureau of Statistics in Bombana, BAPPEDA Bombana as well as the relevant agencies such as the Department of Fisheries and Marine Resources, the Department of Industry, and the Department of Cooperatives and UMK.

The regional potency in a minapolitan area is descriptively analyzed. A Principal Component Analysis (PCA) was applied to find all important variables which affected on the system performance.
of local economic minapolitan development [5]. These variables will characterize the potential of the minapolitan area. PCA analysis process will generate loading and scoring factor. Loading factor is the weight of each variable. The variables with weight $\geq 0.7$ will represent other variables. Meanwhile, scoring factor is the score of each district or region as a original variable and it is used to construct a regional hierarchy based on the indicators and variables used. The number of scoring factor is determined if it has more than one eigenvalues with diversity $\geq 70\%$ [13].

A Spatial Durbin Model was used to determine the relevance and performance of the system minapolitan local economic development. For example, variables to determine the level of development in a region other than the independent variable is affected (though the results of PCA) is also affected by other variables, namely the relationship spatial. The data used for the independent variable ($x$) is derived from the main component of the PCA processing results. Representation on Spatial Durbin location factor model in the form of a matrix called contiguity proximity matrix [12].

Contiguity matrix calculations to determine the relationship between system performance and performance minapolitan local economic development in this study is based on two (2) aspects, namely:

a. Adjacency (boundaries). If both regions adjacent / neighboring, then the relationship between the two regions is relatively high. For a particular facility, the two regions can utilize together. In other words that the activity / event somewhere will be affected by events elsewhere.

b. Inverse distance (centroid). The greater the distance between the two regions, the smaller the inter-regional linkages (inversely), so that the interaction between regions is relatively reduced.

For the physical characteristics of the region, neighboring regions will have the same physical characteristics of the natural almost possible because of the similarity of natural processes.

The Spatial Durbin Model is formulated as follows:

$$D_{id} = \alpha_d + \sum_{d' \neq d} \beta_{dd'} D_{id'} + \sum_d \sum_k \rho_{id[d} W_k D_{id} + \varepsilon_{id} \quad (1)$$

where

$$D_{id} : \text{The typological composite index on the economic development performance } d \text{ in region } i.$$  

$$W_k D_{id} : \text{Mean of typological composite index on the economic development performance } d \text{ in region } i.$$  

$$\rho_{kd} : \text{Average impact of typological composite index on the economic development performance } d.$$  

$$\varepsilon_{rd} : \text{Estimation Error of typological composite index on the economic development performance } d \text{ in region } i.$$  

### 3. Result

#### 3.1. The Potential of Minapolitan Region

The district of Poleang is the most viable region as a minapolitan area in the regency of Bombana. Poleang has the largest population among the other districts in Bombana. In 2011, the population of Rumbia (the capital of Poleang) was 11,236 while the total population of Poleang reached 14,623 with the density at 126 people per km sq. The district of Poleang consists of 9 sub-districts with the total area of 115.39 km sq or 3.47 percent of the total area of Bombana.

The availability of facilities and infrastructure in the area is one of the very important aspects in establishing the district of Poleang as a minapolitan region. The facilities and infrastructure include roads and transportation either inland or sea. The infrastructure such as roads in Poleang likely increased each year in the period 2007-2011, which was from 28.67 km long in 2007 to 32.72 km in 2011 (12.37 percent increase).

The road construction is built by considering the development of transporatasi in highway, in particular, the relevance of load and traffic density vehicles to the capacity and the network of roads in the center of the growth and the connecting road of regional production with marketing center. In addition, the construction of road is also provided to access the remote areas to support the residential development.

In order to improve the accessibility and the mobilization of people and goods between the District of Poleang and its hinterland, in this area has been served by public passenger transport cars and freight cars powered by a sub unit of public transport terminal (located in the Village...
Boepinang). Sub terminal is a ground transportation service center that serves the transportation between villages / villages in the area of inter-district and sub-district and inter-city outside Bombana.

In Poleang, there are also sea transportation facilities as the main supporting factor in the development of Poleang as a minapolitan region. Two ports are available in this district; (1) Boepinang port, which serves as the port of loading and uploading either goods or passengers from and to the city of Kolaka and Baubau, both in the province of Southeast Sulawesi, and Bajoe and Bulukumba, both in the province of South Sulawesi. In addition, Fish Landing Port (TPI) is available in this area as well as Paria port, which serves as a port for the transportation of planting production, such as banana, coconut, cashew and cocoa, from the districts in surrounding Poleang. Natural resources and economic potential as the main production of Poleang consist of the fisheries subsector, both marine and aquaculture. In 2011 the production of marine fisheries reached 1607.33 tons with 1,024 fishermen.

Fishermen in this region use several types of fishing gear such as gill nets, lift nets, fishing, and trapping, with boats and motor boats. The fishing production in Poleang is expected to be increasing in quantity as the district with a minapolitan development planning.

The development of minapolitan area in the district of Poleang has been supported by the availability of telecommunications facilities. Means of telecommunication in this area consists of four units of cellular phone towers (BTS), one unit of the internet cafe, one unit of post office, two postal housing, and one unit of mail bus. The presence of these various telecommunications system has many provide many benefits for the community in supporting the activities of people in Poleang.

### 3.2. Spatial Configuration of Regional Characteristic

The analysis is based on the typology of the region characterization and classification of sub-districts in the study area based resources [21] and [7]. These resources are grouped into two (2) categories, namely: (1) the performance of the system minapolitan (include: natural resources, human resources and social, infrastructure and public facilities, control room, economic activity) and (2) the performance of economic development area (the rate of economic growth, productivity, population, fisheries productivity, poverty, unemployment, GDP per sector).

The Performance of Minopolitan System and Economic Development

The accumulative indices of minopolitan system and regional economic development performance in the form of factor scores were selected again by using the technique of Principal Component Analysis (PCA). Through this analysis can be determined the important variables to predict the phenomenon, as well as to understand the structure and the relationship among the variables in this study, as depicted in Table 3 (eigenvalues) and Table 4 (factor loading value). Table 1 shows that grouping sub-districts in the region Bombana based typology minopolitan system performance, is actually quite done using seven factors which can explain for 82.4% of the total variation. This suggests that the grouping is done based on the district that the factors forming the performance of typological minopolitan system is able to explain the characteristics of the districts of 82.4% against the variation characteristic of all districts. Another major factor was not included in the classification because it had a low value in explaining the variation in total or lower than the average contribution of each variable to the total variance.

#### Table 1. Eigenvalue Values of each PCA with respect to the Perfromance of Minopolitan and Regional Development

<table>
<thead>
<tr>
<th>No</th>
<th>Eigenvalue</th>
<th>% Total Variance</th>
<th>Cumulative Variance</th>
<th>Cumulative (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>4,062</td>
<td>18,466</td>
<td>4,062</td>
<td>18,466</td>
</tr>
<tr>
<td>2.</td>
<td>3,133</td>
<td>14,242</td>
<td>7,195</td>
<td>32,708</td>
</tr>
<tr>
<td>3.</td>
<td>2,497</td>
<td>11,351</td>
<td>9,693</td>
<td>44,060</td>
</tr>
<tr>
<td>4.</td>
<td>2,259</td>
<td>10,272</td>
<td>11,953</td>
<td>54,333</td>
</tr>
<tr>
<td>5.</td>
<td>1,767</td>
<td>8,035</td>
<td>13,721</td>
<td>62,368</td>
</tr>
<tr>
<td>6.</td>
<td>1,511</td>
<td>6,868</td>
<td>15,232</td>
<td>69,237</td>
</tr>
<tr>
<td>7.</td>
<td>1,383</td>
<td>6,289</td>
<td>16,615</td>
<td>82,434</td>
</tr>
</tbody>
</table>

The original variables are considered to correlate with the significant principal component values when the correlation value is greater than 0.7. PCA shows that there are 10 performance variables of minopolitan system which have a significant effect on the new variable. These 10 variables can be reduced into seven main factors which have a fairly close correlation with the variables analyzed and can be considered to reflect the phenomena associated with system performance minopolitan, see Table 2.

The main factor 1 (F1) represents approximately 17% of the variability of the data. The main identifier variables: (a) the rate of economic growth, (b) the productivity of the population and land, (c) share of the fisheries sector, construction, trade and transport / communications.
to the GDP, (d) the density of population, (e) the productivity of people in the fisheries sector, buildings, transport/communications, electricity, gas, water, finance, and leasing, (f) the ratio of regional revenue and fundings, and (g) the land conversion to farm and fishery (as ponds).

Primary identifier between variables in factor 1 is negatively correlated, which increased linkages between population density, productivity of people in the building sector, electricity, gas, water, finance, and leasing, wetland conversion to undeveloped land, land rent in the fishery sector, it resulted in a decrease in the rate of economic growth, population and land productivity; the contribution of the fisheries sector, trade and transport to the GDP in the region with a correlation coefficient between 0.76 to 0.95. This is in accordance to [10] and [2] that the increased conversion of land as farm land, the land rent for fisheries sector, population density, the building sector, electricity, gas, water, finance, and leasing, sub-district revenue indicates that the region an urban area or region that is experiencing a change in the direction of urban areas.

The main factor 2 (F2) represents approximately 12% of the variability of the data. The main identifying variables are as follows; the existence of fisheries extension, the share of area based on the topography of the valley, and the intensity of the fishery production. Primary identifier between two variables in factor 2 is negatively correlated, which increased linkages between fishing instructor presence in the region, the dominant topography of the valley on the other hand it resulted in a decrease in fish production in the region with a correlation coefficient from 0.79 to 0.84. This is relevant to [9] and [2] that counseling program conducted by a fishing instructor in the topography of the valley dominant region is not targeted or suboptimal thereby reducing the intensity of fish production in the region.

3.3. Regional Development Model Based on Minapolitan Approach

The minapolitan-based regional development model is formulated in Spatial Durbin Equation as follows:

\[
\ln(KPW) = 1.021 + 0.106 \ln(SDAf3-) \\
+ 0.054 \ln(SDAf7-) + 1.124 \ln(SDM f1+) \\
+ 0.211 \ln(PB f2-) + 0.128 \ln(AE f1+) \\
- 0.244 \ln(IFP f3-) - 1.677 W_2 \ln(SDAf5+) \\
- 1.428 W_2 \ln(SDM f2)
\]

Figure 1 shows that performance of variables within the region such as natural resources, human resources, budgeting, economic activity, infrastructure and public facilities. It also shows that the performance of natural resources and the variable in neighboring regions at a certain radius such as regional development, natural resources, human and social resources simultaneously has a significant impact on the performance of regional economic development in the region, with the adjusted R-squared value at 0.994.

![Figure 1](image)

This means that these variables all together are able to explain the performance of regional economic development in the region by 99.4%, the rest is due to other factors.
Table 2. values of Loading Factor for each Performance Indicator Variable of Minapolitan and Regional Economy Development

<table>
<thead>
<tr>
<th>Kode</th>
<th>Deskripsi Variabel</th>
<th>Fac. 1</th>
<th>Fac. 2</th>
<th>Fac. 3</th>
<th>Fac. 4</th>
<th>Fac. 5</th>
<th>Fac. 6</th>
<th>Fac. 7</th>
<th>Fac. 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>KPED F1</td>
<td>Economy Growth Rate, Population Productivity &amp; Agricultural Market Sector, trading &amp; transport w.r.t. Regional Bruto Revenue</td>
<td>-0.91*</td>
<td>0.21</td>
<td>-0.08</td>
<td>0.20</td>
<td>-0.04</td>
<td>0.05</td>
<td>-0.15</td>
<td>-0.06</td>
</tr>
<tr>
<td>KPED F2</td>
<td>Industrial Market Sector. Financial Sector. &amp; Leasing w.r.t. Regional Revenue</td>
<td>-0.04</td>
<td>-0.01</td>
<td>-0.86*</td>
<td>-0.16</td>
<td>0.10</td>
<td>-0.05</td>
<td>0.13</td>
<td>0.03</td>
</tr>
<tr>
<td>KPED F4</td>
<td>Unemployment Market Sector</td>
<td>-0.01</td>
<td>-0.05</td>
<td>0.02</td>
<td>0.17</td>
<td>0.04</td>
<td>0.79*</td>
<td>0.26</td>
<td>-0.15</td>
</tr>
<tr>
<td>SDMS F1</td>
<td>Productive Population Density around construction sector, electricity, gas, water, finance, and leasing</td>
<td>0.95*</td>
<td>-0.04</td>
<td>0.02</td>
<td>-0.13</td>
<td>0.10</td>
<td>-0.02</td>
<td>-0.06</td>
<td>-0.03</td>
</tr>
<tr>
<td>SDMS F2</td>
<td>Social Institution</td>
<td>0.17</td>
<td>-0.06</td>
<td>0.03</td>
<td>0.00</td>
<td>0.05</td>
<td>0.15</td>
<td>0.23</td>
<td>0.84*</td>
</tr>
<tr>
<td>SDMS F3</td>
<td>Fishery penyuluh</td>
<td>0.03</td>
<td>0.84*</td>
<td>0.31</td>
<td>0.08</td>
<td>0.01</td>
<td>0.07</td>
<td>0.02</td>
<td>-0.08</td>
</tr>
<tr>
<td>SDMS F4</td>
<td>Main income of community in the fishery sub sector</td>
<td>0.04</td>
<td>0.33</td>
<td>-0.80*</td>
<td>0.04</td>
<td>-0.02</td>
<td>-0.04</td>
<td>0.30</td>
<td>0.07</td>
</tr>
<tr>
<td>SDA F6</td>
<td>Market based on the topography dan land condition</td>
<td>0.01</td>
<td>-0.20</td>
<td>-0.28</td>
<td>-0.12</td>
<td>-0.09</td>
<td>-0.20</td>
<td>0.78*</td>
<td>0.18</td>
</tr>
<tr>
<td>PR F1</td>
<td>Fishery farm to construction conversion</td>
<td>0.76*</td>
<td>-0.33</td>
<td>-0.07</td>
<td>0.17</td>
<td>0.01</td>
<td>0.06</td>
<td>-0.14</td>
<td>0.18</td>
</tr>
<tr>
<td>AE F1</td>
<td>Fishery production Intensity</td>
<td>0.29</td>
<td>-</td>
<td>0.19</td>
<td>-0.29</td>
<td>-0.10</td>
<td>-0.02</td>
<td>-0.07</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Table 3. The result of validation performance of minapolitan-based regional development

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression Coeff./ Parameters</th>
<th>Std. Err</th>
<th>T</th>
<th>Sig (P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1,021</td>
<td>0,500</td>
<td>2,215</td>
<td>0,003</td>
</tr>
<tr>
<td>Ln(TAKSESt f3-)</td>
<td>0,106</td>
<td>0,010</td>
<td>5,445</td>
<td>0,000</td>
</tr>
<tr>
<td>Ln(TAKSESr f7+)</td>
<td>0,054</td>
<td>0,011</td>
<td>2,323</td>
<td>0,003</td>
</tr>
<tr>
<td>Ln(SDM f1+)</td>
<td>1,124</td>
<td>0,022</td>
<td>24,211</td>
<td>0,000</td>
</tr>
<tr>
<td>Ln(PB f2-)</td>
<td>0,211</td>
<td>0,021</td>
<td>8,032</td>
<td>0,000</td>
</tr>
<tr>
<td>Ln(AE f1+)</td>
<td>0,128</td>
<td>0,026</td>
<td>3,521</td>
<td>0,000</td>
</tr>
<tr>
<td>Ln(IFP f3-)</td>
<td>-0,244</td>
<td>0,032</td>
<td>-10,112</td>
<td>0,000</td>
</tr>
<tr>
<td>W2Ln(SDAf5+)</td>
<td>-1,677</td>
<td>0,432</td>
<td>-4,332</td>
<td>0,000</td>
</tr>
<tr>
<td>W2Ln(SDAf2+)</td>
<td>-1,428</td>
<td>0,215</td>
<td>-6,643</td>
<td>0,000</td>
</tr>
</tbody>
</table>

R = 0,998;  R² = 0,997;  Adj R² = 0,994

Description:
- ln KPW = Regional Development Performance
- ln SDM f1+ = Fishery Employment Productivity
- W2 lnSDA f5+ = Neigboring coastal areas at a certain radius
- W2 lnSDM f2+ = The presence of social institution at a certain radius
- ln TAKSESt f3- = High Accessibility Level
- ln TAKSESr f7+ = Low Accessibility Level
- ln PB f2- = Development Expenditure
- ln AE f1+ = Intensity Fishery Production
- ln IFP f3- = Health, Medical, and Telecommunications Infrastructure
In more detail, all the explanatory variables of minapolitan model relating to the regional economic development in the region can be explained as follows:

a. Significant and Elastic Variables

1. At a significance level of 0.05, the fishery employment productivity within the minapolitan region has significantly a positive impact on the regional development with the elasticity of 1.124. This means that the increase of labor productivity in fishery by 1% will encourage the development in the minapolitan area by 1.124%. The positive coefficient means that labor productivity in the region itself is a determining factor in increasing the productivity of the minapolitan region.

2. The areas with a high accessibility level within the areas itself have significantly impact on the minapolitan regional development (sig. \( \alpha = 0.05 \)). However, it is inelastic (elasticity 0.106), which means that the increase of accessibility in the region has a very little effect on the increase of the minapolitan regional development.

3. The presence of social institutions such as local youth organizations, volunteerism (gotong royong), social organizations of farmer/fishermen, and association of farmers/fishermen in the region located in neighboring regions has significantly a negative impact on the minapolitan regional development (sig. \( \alpha = 0.05 \)) with the elasticity of 1.428. This condition occurs due to the communication or interaction between people in the minapolitan region and those in the surrounding regions at a certain radius is less happened in which the harmoniously social interactions will be mutually reinforcing and provide a great opportunity to develop centers of activity in the concerned area.

b. Significant but Inelastic Variables

1. The ratio of the development expenditure and the total budget of the district is able to support the minapolitan regional development at significance level of 0.05 with the elasticity of 0.211. This implies that the budget used for the minapolitan regional development is already on target.

2. The intensity of fishery production in the minapolitan area is significantly able to encourage the regional development at significance level of 0.05 with the elasticity of 0.128. This tells that it has been carried out an integrated farming system in the minaplotan region in which the increasing intensity of the fish population will increase the minapolitan productivity.

The ratio of health, medical and telecommunications facilities in the minapolitan area will not support the regional development at a significance level of 0.05 with the elasticity of 0.244. The reason of this is that the improved health, medical and telecommunications facilities in the region likely cause the area tends to be an urban area so that there will be a high conversion rate of fishing grounds to construction. These conditions will affect on the decrease of minapolitan productivity.

4. Conclusion

The accessibility analysis of Poleang against its hinterland shows that the weighted GI ranged from 0.11 to 2.51, which means that the movement of people between the district of Poleang and its hinterland were in the category from low to high interaction; (a) three districts with low interaction with Poleang; Central Poleang, West Poleang and South Poleang, (b) two districts with the moderate interaction with Poleang; Tontonunu and North Poleang and (c) other three districts with low interaction with Poleang; East Poleang and Southeast Poleang.

The result shows that there were 10 variables of the minapolitan system performance with significant effect on a new variable. However, it is enough to use seven typological factors of the variables in the cluster analysis to group all districts in the region of Bombana. All these factors were able to explain 82.4% of the total variation.

This study can provide several benefits; (a) to strengthen the interrelation among the marine and fishery sectors, industries and supporting services, and the spatial relationship between rural and urban areas, (b) to increase the capacity building and community empowerment so that the fishermen can strengthen the institutional economic development and the fishing community's social capital, (c) to encourage the development of all types of enterprises in the region with strong linkages with the business, (d) to increase the availability of coastal areas with the infrastructure and community based development.

Based on the regional development model with the minapolitan approach, it is recommended that the development of ground transportation is vital in order to increase the accessibility of sub-districts.
and to strengthen the integration of all regions in the minopolitan system. As the mobility of people and goods increased, it is necessary to improve the availability of jobs and public services. The economical and industrial development should be based on the local potential resources. In developing the linkages among districts in Bombana based and marine and fisheries, market system of products needs to be provided both internally and externally.

References