DEVELOPMENT MODEL OF UNDER DEVELOPED SMALL ISLAND IN SUMENEP

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Abstract

The purpose of this study is to build a Geographic Information System and Management Information System models of development of small islands in Sumenep. Based on the identification of economic potential there are few regions such as Nonggunong, Gayam, Ra'as, and Sapeken which have large contribution toward the rice plant production. The whole districts of the islands in Sumenep are the base of cow, horse, chicken and livestock commodities. Sapeken have significant contribution for marine fish. Giligenting, Nonggunong, Gayam, and Arjasa have large potential for brackish fish. Moreover, Giligenting also has a great contribution for fresh fish.

Keywords: Development model, under-developed area, small islands
JEL classification numbers: O13, O14

Abstrak

Tujuan dari penelitian ini adalah untuk membangun sebuah *Geographic Information System* dan *Management Information System* model pengembangan pulau-pulau kecil di Sumenep. Berdasarkan identifikasi potensi ekonomi, terdapat beberapa daerah seperti Nonggunong, Gayam, Ra'as, dan Sapeken yang memiliki kontribusi besar terhadap produksi tanaman padi. Kabupaten-kabupaten dari seluruh pulau-pulau di Sumenep adalah basis untuk komoditas sapi, kuda, ayam dan ternak. Sapeken memiliki kontribusi yang signifikan untuk penyediaan ikan laut. Giligenting, Nonggunong, Gayam, dan Arjasa memiliki potensi besar untuk penyediaan ikan air payau. Selain itu, Gili-genting juga memiliki kontribusi yang besar untuk ikan segar.

Keywords: Model pembangunan, daerah tertinggal, kepulauan kecil
JEL classification numbers: O13, O14

INTRODUCTION[1]

Regional development plans adopted by Indonesia have established nodal areas. These areas consist of economically core area with integrated complement surrounding areas (Soepono, 2008). Nodal region might be regarded as an economic region controlled by one or several centres of economic activities (more on nodal regin, please see Parr, 2001). As an example, Jakarta is a centre of economic activity of Jabodetabek area, while Surabaya is a centre of economic activity of Gerbangkertasusila.

The phenomenon of nodal regions is not only occurred in the province, but it

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is also in districts which has many archipelago or small islands. The small island district usually consists of a mainland with its archipelagos. Mainland area is typically the central government and the centre of economic activities, while the archipelago serves as a supporting region which is mostly still under developed. In Sumenep, the mainland areas is as the centre of economic activities because all economic infrastructures like input and output markets support the development of economic activities. As a result, the mainland's economic growth rate is higher than those of the archipelago (Haerudin, 2001).

Area planning is the planning of how to utilize space of area and its development for long term, medium term and short term. The planning should begin by defining the vision and mission the area (Sutarno, 2002). The area planning is ideally arranged after the region planning because it is the fundamental target of the area development planning. In fact, there are still many areas that have not already had their regional planning. Based on the local regulation, each area must have regional planning for that the area development relies on it.

Regional planning has two approaches that are sector and regional approaches. The sector approach usually pays less attention on the spatial aspects. On the other hands, a regional approach is more spatial than sector one. It is a bridge to relate development plans and regional planning.

Sector plans for area planning is that all economic activities classified into sectors. Each sector is analyzed in order to know it potential and opportunities, then established anything improved and where its location (Ying, 2000; and Supono, 1999). The method is that sectors breakdown into many homogeneous groups. Homogeneous group analyzed with specific tool. For example, analyzing agricultural sector, it can be divided into sub-sectors of food crops, plantation, fisheries and forestry.

Then, each sub-sector is divided on the basis of commodity. For example, sub sector food ingredient consists of commodities of rice, corn, and soybean. Each commodity is easier than aspects of production and marketing. This is because of the scientific literature or information is often carried out on the base of commodity or sectors.

When the sector approach is done, it doesn't mean that one sector separate to another. One of the sector approaches that focus on growth of one sector to another is called input-output analysis. This analysis can be used in an area if the input-output table is available. Making the tables to describe the real condition is quite complicated, started from data collection until the analysis must be comprehensive.

In the sector approach, each sector should be made an analysis to find the answers about which sector has competitive advantage, which is base and non-base sector, which sector has higher value, which sector has high forward linkage and backward linkage, which sector that needs to be developed to reach the minimum needs of the area, and which sector that absorb many labour per each modal and per each hectare of land.

Based on the various criteria above, it can be applied priority scaling on sector and commodity, what should be developed in the area based on the target. Determining priority scale is absolutely needed in area development plans because the lack of funding from the government budget (Maijidi, 1997).

Regional or spatial approach is totally different with sector approach, although both have the same goal. The sector approach is an approach that is initially ignored the space factor (spatial). The sector approach can be itemized on a smaller area, such as each district sector analysis, each region and village, until the factor space

can be met. Even though, it still not meets the regional approach, because it has its own sides.

The sector approach prior notice analyzed sectors that produces projects to be implemented. After the project is known, then think about the project location. Regional approach narrowly concerned with all the space conditions. If there is any room that is not optimal after analyzing, there should be conducted some activities at that location. Thus, the use of space becomes harmonious and efficient to provide the optimal wealth for the people.

Regional approach generally considering the use of space for production activities and services also predict the direction of concentration activities and then, estimating the need of facilities for each concentration and plotted connective tissues, so that various concentrations of activity can be linked efficiently. From the description above, it can be said that the ultimate goal of these two approaches are same, determining what activities and which locations. The differences are only on the way how to start and the analysis attitude.

Regional approach is the economic and space approach. Economic approach to regional economic branch and can be worn a variety of equipment for the general economic analysis or economic development, more specifically, regional economies to look towards the development of an area in the future (Badrudin, 1999). Regional economic analysis may give an answer to the sector which need to be developed and the level of its development priorities. In fact, there is no answer for the questions, such as where the location of this sector is developed, how much area is used, and how many infrastructure or social facilities that needs to be built (Wei et al., 2000).

Then, regional analysis combined with spatial approach, it must be coupled with the maps to simplify and strengthen the analysis. Regional approach should an-

swer the various questions that remain to be answered if only using the sector approach as: (a) The location of various economic activities that will develop, (b) Residents who will visit and the possible stay and settle; (c) The change in spatial structure and built the necessary infrastructure to support changes in the structure of space; (d) The need for provision of social facilities and (e) Transportation network plans that will relate the various activity centres or residential efficiently.

Based on above explanation, the research aims to identify the economic potential of each small island in the administrative area of Sumenep, Deciding the typology of small islands based on the potential economic and land usage (zoning of land), Deciding the unit area of development in their respective small islands based on carrying capacity and geographical location, identify the competitiveness of each small island in Sumenep, and the establishment of under developed area development model.

METHODS

The main purpose of this research is to identify area economic potential in terms of their level of competitiveness, bearing capacity, and traction in the small islands of Sumenep which has 112 islands. This identification, then, can be applied for Management Information System (MIS). To measure the economic potential uses four approaches i.e. physical and non-physical facilities, economic sectors, and zoning land.

Specifically, this study uses five analytical tools. The first is the Competitiveness Balance Sheet Analysis to measure the competitiveness level in terms of its institutional indicators. This measure is based on strength and weaknesses variables to achieve its competitiveness level. It analyze the relative advantages and disadvantages of an area to those of other areas. The second tool is Scalogram. The scalogram is to identify the ability of each district in

providing public services. The basic assumption is that a district has a relatively complete facilities compared with other sub-districts, so that the district is able to act as a growth centre in a region.

The Location Quotient (LQ) is the third analytical tool to determine the base and non-base sectors. The sector is as base sector when the value of LQ is less than or equal to 1; and as the base sector when the LQ value is greater than 1. The fourth is the Shift-Share (SS). This analysis can be used to project economic growth of an area (see Houston, 1967; Stevens and Moore, 1980, and Deller, 2010; among others). The last is Klassen Typology. This tool is to identify the pattern and structure of regional economic growth. Kuncoro (2001) explains that there are four classifications of growth area i.e. rapid growth region, depressed areas or retarded region, and growing region, and under developed area or backward region.

RESULTS DISCUSSION

Sumenep is one of the districts that is growing economic activity. It can be seen from the Gross Regional Domestic Product (Table 1). From the table, the *GDP* is grouped into 3 main sectors, namely the primary, secondary and tertiary sector. Primary sector are included agriculture, mining and quarrying sector. This sector provided the highest contribution around amounted 62.66% which was dominated by the agricultural sector. Secondary sector includes manufacturing, electricity, water supply, and building sectors. These sectors composed lower to *GDP* of Sumenep which was only around 4.53%. The dominating sector was manufacturing which contributed 2.52% on average over the last 2 years. The tertiary sector consists of trade, hotels and restaurants, transportation, communication, financial, ownership and business services building, and services sector. This sector contributed equal to 32.81% of *GDP*. The role of this sector was dominated in trade, hotels & restaurants which composed 15.45% of *GDP*. Those sectors contribution indicates that economic structure of Sumenep was dominated by primary sector.

Table 1: Gross Domestic Product of Sumenep, 2007-2008

No	Sectors/sub-sector	*GDP* (Rp million)		Contribution (%)		
		2007	2008	2007	2008	average
1	Agriculture	2,513,156.87	2,577,169.43	52.50	51.69	52.09
2	Mining & Quarrying	502,746.59	530,089.84	10.50	10.63	10.57
	PRIMARY	3,015,903.46	3,107,259.27	63.00	62.32	62.66
3	Manufacturing Industry	120,384.23	125,840.62	2.51	2.52	2.52
4	Electricity & Water Supply	5,001.62	5,234.67	0.10	0.10	0.10
5	Construction	90,692.84	95,445.15	1.89	1.91	1.90
	SECONDARY	216,078.69	226,520.43	4.51	4.54	4.53
6	Trade, Hotels & Restaurants	730,365.28	780,227.14	15.26	15.65	15.45
7	Transportation & Communication	167,862.70	176,269.41	3.51	3.54	3.52
8	Finance, Real Estate, & Business Services	197,757.82	211,425.30	4.13	4.24	4.19
9	Services	458,978.32	484,549.39	9.59	9.72	9.65
	TERTIARY	1,554,964.13	1,652,471.24	32.48	33.14	32.81
	Gross Regional Domestic Product	4,786,946.28	4,986,250.94	100,00	100,00	

Source: Statistics of Sumenep, 2009.

Meanwhile the economic activities representing the economic capacity of each district are grouped into three i.e. agriculture, livestock and fisheries. The Table 2 describes contributions of each sub-district based on three major groups of economic activity.

The Table 2 shows that Arjasa was the districts which have the largest contribution to the agricultural sector of Sumenep i.e. 11.58%. In contrast, Masalembu and Giligenting had the two lowest contribution of agricultural sector. The livestock sector was primarily from Gayam which was around 7.38% while the lowest livestock sector was from Kangayan. In the fisheries sector, the most productive area was Masalembu while the least one was Kangayan.

Based on those contribution analysis, it can be identified the base commodities of each sub-district island. The fist base commodity is food crops which consist of rice, corn, cassava, sweet potato, nuts, mungbean, and soybean.

Table 2: Economic Capacity of Agriculture, Livestock and Fisheries of Each District (In Thousands)

No	Sub-district	Food	Livestock	Fisheries
1	Giligenting	2.005	3.369	2.715
2	Talango	3.719	4.523	2.875
3	Nonggunong	3.104	3.662	5.391
4	Gayam	3.496	7.380	4.531
5	Raas	3.633	1.311	5.255
6	Sapeken	3.444	1.411	7.313
7	Arjasa	8.691	2.298	3.557
8	Kangayan	2.897	766	1.186
9	Masalembu	1.775	1.168	9.257

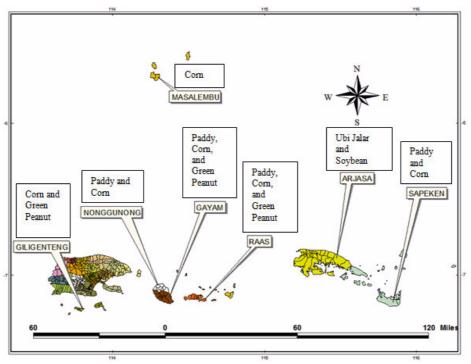Source: Statistics of Sumenep, 2009.

Tabel 3: Base Sector of Food Crops in Sumenep

No	Sub-district	Type of commodity						
		Paddy	Corn	Cassava	Sweet potato	Nut	Soybean	Mungbean
1	Giligenting	NBS	BS	NBS	NBS	NBS	NBS	BS
2	Talango	NBS	BS	NBS	NBS	NBS	NBS	NBS
3	Nonggunong	BS	BS	NBS	NBS	NBS	NBS	NBS
4	Gayam	BS	BS	NBS	NBS	NBS	NBS	BS
5	Raas	BS	BS	NBS	NBS	NBS	NBS	BS
6	Sapeken	BS	BS	NBS	NBS	NBS	NBS	NBS
7	Arjasa	NBS	NBS	NBS	BS	NBS	BS	NBS
8	Kangayan	NBS	NBS	NBS	BS	NBS	BS	NBS
9	Masalembu	NBS	BS	NBS	NBS	NBS	NBS	NBS

Notes: BS is base sector, NBS is non-base sector.
Source: Department of Agriculture of Sumenep 2007.

Source: Department of Agriculture of Sumenep 2007.

Figure 1: Base Sector of Food Crops in Sumenep

Base sector of rice is located in Nonggunong, Gayam, Ra'as and Sapeken. Except for Arjasa and Kangayan, almost all sub-districts in Sumenep become corn base commodity sector. However, Arjasa and Kangayan have large contribution to sweet potato and soybean. Giligenting, Gayam and Ra'as have base sector of mungbean.

The second base commodity is vegetables. Table 4 classifies the base sec-tor of vegetables in Sumenep. Nonggunong district has a fairly high contribution on chilli, tomatoes and eggplant commodity. Besides, Ra'as has a large contribution to long beans and cucumbers.
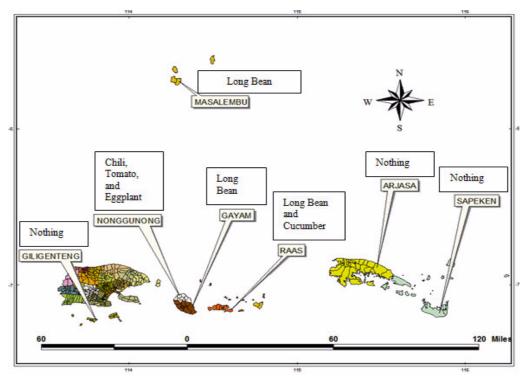
Beside Ra'as, Gayam and Masa-lembu also have high contribution for long beans commodity. The base sector of vege-tables is diagrammatically mapped in Fig-ure 2.

Table 4: Base Sector of Vegetables in Sumenep

No	Sub-district	Type of commodity							
		Chili	Long bean	Tomatoes	Shorgum	Eggplant	Cucumber	Swamp plant	Spinach
1	Giligenting	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
2	Talango	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
3	Nonggunong	BS	NBS	BS	NBS	BS	NBS	NBS	NBS
4	Gayam	NBS	BS	NBS	NBS	NBS	NBS	NBS	NBS
5	Raas	NBS	BS	NBS	NBS	NBS	BS	NBS	NBS
6	Sapeken	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
7	Arjasa	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
8	Kangayan	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
9	Masalembu	NBS	BS	NBS	NBS	NBS	NBS	NBS	NBS

Notes: BS is base sector; NBS is non-base sector.
Source: Department of Agriculture of Sumenep 2007, processed data.

Source: Department of Agriculture of Sumenep 2007.

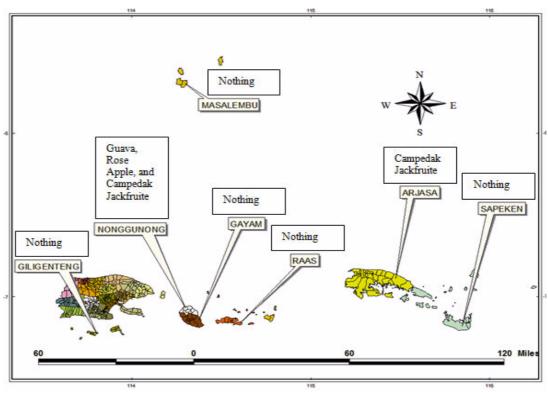**Figure 2:** Base Sector of Vegetables in Sumenep

Table 5: Base Sector of Fruits in Sumenep

No	Desa	Type of commodity							
		Guava	Rose apple	Mango	Jackfruit	Banana	Papaya	Sapodilla	Bread-fruit
1	Giligenting	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
2	Talango	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
3	Nong-gunong	BS	BS	NBS	BS	NBS	NBS	NBS	NBS
4	Gayam	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
5	Raas	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
6	Sapeken	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
7	Arjasa	NBS	NBS	NBS	BS	NBS	NBS	NBS	NBS
8	Kangayan	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS
9	Masalembu	NBS	NBS	NBS	NBS	NBS	NBS	NBS	NBS

Notes: BS is base sector; NBS is non-base sector.
Source: Planted Area, Harvested, Production and Productivity of Food Crop Commodities, Sumenep 2007, processed data.

Fruit crops are other important agricultural commodities in Sumenep. The contribution of the commodity toward regional economy can be classified as in Table 5. Based on Table 5, it shows that Nonggunong has a significant contribution to guava, rose-apple and jackfruit. In addition, Arjasa also become the location of base sector of jackfruit because it provides high contribution to the regional economy. Mapping of the base sector identification is depicted in Figure 3.

Source: Department of Agriculture of Sumenep 2007.
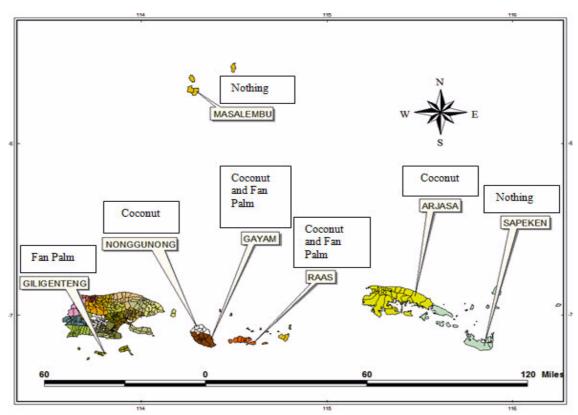
Figure 3: Base Sector of Fruits in Sumenep

The current plantations in Sumenep are coconut, palm and castor oil plant. Based on its contribution value, the base sector of plantations is as classified in Table 6. Nonggunong, Gayam, Ra'as, Arjasa and Kangayan are the sub-districts that have base sector of coconut commodity. Besides, Giligenting, Gayam and Ra'as can also provide high contribution to palm commodity. Even though there are also many castor oil plants found in the islands, they don't important enough for regional economy. In diagram, the map of plantation base sector is presented in Figure 4.

Table 6: Base Sector of Plantation in Sumenep

No	Sub-district	Type of Commodity		
		Coconut	Fan Palm	Castor Oil Plant
1	Giligenting	NBS	BS	NBS
2	Talango	NBS	NBS	NBS
3	Nonggunong	BS	NBS	NBS
4	Gayam	BS	BS	NBS
5	Raas	BS	BS	NBS
6	Sapeke n	NBS	NBS	NBS
7	Arjasa	BS	NBS	NBS
8	Kangayan	BS	NBS	NBS
9	Masalembu	NBS	NBS	NBS

Notes: BS is base sector; NBS is non-base sector.
Source: Department of Agriculture of Sumenep 2007.

Source: Department of Agriculture of Sumenep 2007.

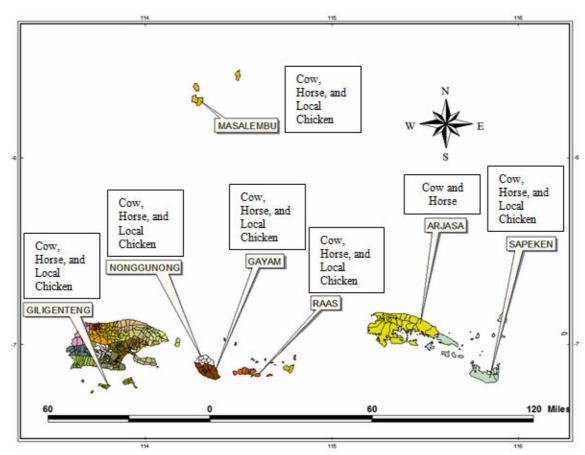**Figure 4:** Base Sector of Plantations in Sumenep

In Sumenep, the kinds of livestock are typically cow, horse, goat/sheep, poultry, and ducks. Based on the character of its contribution in some districts in Sumenep can be classified as in Table 7. From the Table 7, it can be found that all districts in Sumenep belongs to the base sector of cow, horse, and local poultry commodity. However, the local poultry do not have significant contribution in Kangayan and Arjasa. On the other hand, there is substantial commodity of goat and duck in Sumenep.

Table 7: Base Sector of Livestock in Sumenep

No	Sub-district	Type of Commodity				
		Cow	Horse	Goat	Duck	Local poultry
1	Giligenting	BS	BS	NBS	NBS	BS
2	Talango	BS	BS	NBS	NBS	BS
3	Nonggunong	BS	BS	NBS	NBS	BS
4	Gayam	BS	BS	NBS	NBS	BS
5	Raas	BS	BS	NBS	NBS	BS
6	Sapeken	BS	BS	NBS	NBS	BS
7	Arjasa	BS	BS	NBS	NBS	NBS
8	Kangayan	BS	BS	NBS	NBS	NBS
9	Masalembu	BS	BS	NBS	NBS	BS

Notes: BS is base sector; NBS is non-base sector.
Source: Sub-districts in numbers 2007.

Source: Department of Agriculture of Sumenep 2007.

Figure 5: Base Sector of Live stocks in Sumenep

Typical fisheries in in Sumenep are marine fish, brackish water fish, fresh water fish, and public waters fish. Based on the character of its contribution, the base sector classification is depicted in Table 8. The table shows that marine fish species is mostly form Sapeken. Meanwhile Giligenting, Nonggunong, Gayam, and Arjasa are the important districts producing for brackish water fish. Giligenting is also main supplier for the freshwater fish. However, there is no district which has base sector for public water fishes in Sumenep. These potential is portrayed in Figure 6.
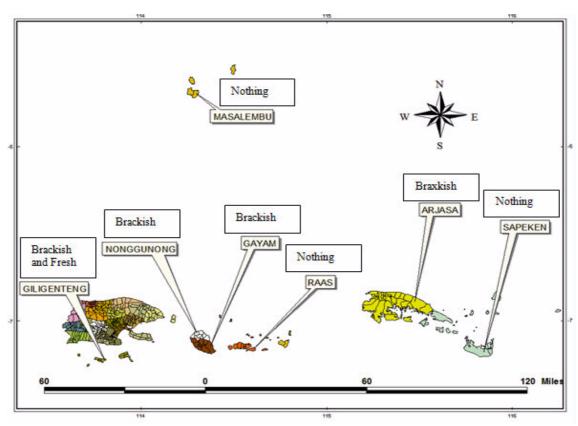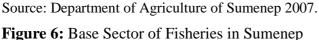
Table 8: Base Sector of Fisheries in Sumenep

No	Sub-district	Type of Fisheries Commodity			
		Marine	Brackish	Fresh	Public Water
1	Giligenting	NBS	BS	BS	NBS
2	Talango	NBS	NBS	NBS	NBS
3	Nonggunong	NBS	BS	NBS	NBS
4	Gayam	NBS	BS	NBS	NBS
5	Raas	NBS	NBS	NBS	NBS
6	Sapeken	BS	NBS	NBS	NBS
7	Arjasa	NBS	BS	NBS	NBS
8	Kangayan	NBS	NBS	NBS	NBS
9	Masalembu	NBS	NBS	NBS	NBS

Notes: BS is base sector; NBS is non-base sector.
Source: Sub-districts in numbers 2007.

Source: Department of Agriculture of Sumenep 2007.

Figure 6: Base Sector of Fisheries in Sumenep

Combining the result of base sector and the scalogram order, it can be identified the competitiveness of each sub district (Table 9). Arjasa is included as the first order because it is the most advanced region compared to the other districts. However based on the review of its economic growth, Arjasa is included in the underdeveloped area because its contribution on economic growth is quite low. Some commodities that could be a base sector in Arjasa are rice, mung bean, soybean, jackfruit and brackish fisheries.

Ra'as ranks in the second and is classified as potential for developed area. Based on the review of economic growth, Ra'as is included as well developed because it has large contribution for economic growth. Suggested commodities which can be developed are rice, corn, green beans, long beans, cucumber, coconut, palm, beef and chicken.

Meanwhile Sapeken is included as developing regions category because Sapeken serves as a centre of trade in small islands such as Saur, Sapangkur, Paliat, Sapangkur, Saebus, Sabuntan, and Pagerungan Island. However, economically this region is still under developed. The potential commodities to be developed are rice, corn, peanuts, green beans, and marine fisheries.

In accordance to scalogram, Giligenting is the fourth order economic growth and economically it is progressive. Some commodities that could be a base sector in Giligenting are corn, green bean, and sapodilla, jackfruit, chicken and brackish and freshwater fisheries.

Gayam is as potentially developing area and economically it is developing region. Some commodities that could be a base sectors are rice, corn, green beans, long beans, coconut, palm, beef, chicken and brackish fisheries.

Table 9: Competitiveness Category of Each Sub-District

No	Sub-district	Salogram Orde	Growth Economy Base/Non Base Orde
1	Arjasa	Advanced	Under developed
2	Raas	Potential for Advanced	Growing
3	Sapeken	Growing	Under developed
4	Giligenting	Growing	Advanced
5	Gayam	Potential for Growing	Growing
6	Talango	Potential for Growing	Under developed
7	Masalembu	Under developed	Growing
8	Nonggunong	Under developed	Advanced
9	Kangayan	Under developed	Growing Potential

Source: Super Impose Scalogram and Economic Growth Analysis of Bases-Non Base

Talango is classified as potentially developing area. Economically, Talango is under developed due to lower economic contribution and economic growth rate. Corn, spinach, beef, chicken or fish of the sea, brackish and public waters are the potential commodity for development.

Masalembu is categorized as under developed area because the transportation access is only rely on the once a week small ship. It cause the development and mobilization of the population is isolated only around Masalembu. In addition, quality of human resources is lower and the lack of facilities is also the hindering factors. However, Masalembu is economically included in developing area. Suggested potential commodities are rice, maize, cassava, green beans, long beans, guava, distance, beef, and chicken.

Nonggunong is included as under developed district because education and population welfare level is still lower and the facilities are quite limited. However this region is economically categorized into the most advanced region compared to other districts. Some commodities that could be the base commodity sector are rice, corn, peanuts, chilies, tomatoes, eggplant, guava water, and guava, jackfruit, coconut, beef, chicken and brackish fisheries.

The final identification is Kangayan. Kangayan is still relatively new so that the facilities, level of welfare and levels of education are still low. The people mobility is still oriented to Arjasa. It contributes Kangayan becomes under developed area. However Kangayan is economically included as growing potential area. Both its economic contribution and the growth rate were quite high. Some commodities that could be the base sector commodity are sweet potato, soybean, coconut and cow.

Based on those identification of economic potential analysis, it is proposed the development model for the under developed region of small islands in Sumenep. The model is formulated into of six strategies: (a) Marine fisheries cultivation areas; (b) Brackish aquaculture development areas, (c) harbour and fisheries area, (d) tourism development area; (e) cultivation and conservation area, and (f) mining area.

Kangean Island is a potential area for marine fisheries cultivation. The areas that can be used for pearl farming are Arjasa, Sapeken, Kangayan, Paliat Island, Sapangkor, Saobi, Paliat, Saebus, Sabunten, Kangean, Saor, Saseel, Sepanjang, Masalembu, and Talango.

Waters that are suitable for reef fish cultivation in Kangean Island Cluster are Arjasa, Kangayan, Sapeken and Sapangkur, Masalembu, Raas, and Gayam. Meanwhile,

brackish fisheries are potentially developed in Kangean, Sapeken, Masalembu and Talango. Harbor development area is located in Batu Guluk, Kangean Island, Arjasa, Sapeken Port, Talango, and Masalembu.

Mamburit, Paliat, Sepanjang, Saobi, and Kangean Island are developed for nautical tourism. Mamburit and Saobi Island are for developing natural reserves. Meanwhile Kangean, Paliat, Sepanjang, and Saobi Island are developed for a natural conversation. Pengerungan Besar and Sepanjang Island are the area development for oil and gas mining.

CONCLUSSION

Based on the identification of economic potential, the districts like Nonggunong, Gayam, Ra'as and Sapeken played important roles in rice production. In addition, almost all districts in Sumenep were significant corn-based sectors except for Arjasa and Kangayan. All districts in Sumenep are considered as sector base for cattle, horses and local poultry commodity. Sapeken had high contribution to marine fish. Giligenting, Nonggunong, Gayam and Arjasa had significant contribution to brackish fish and Giligenting also had high contribution to freshwater fish.

Based on the typology analysis of the small islands toward economic potential and land zoning, the areas that could be used for pearl farming were Arjasa, Sapeken, Kangayan, Paliat, Sapangkor and Saobi. The reef fish cultivation was clustered in island of Kangean, Masalembu, Raas, and Gayam. Brackish fish aquaculture has potentially developed in Kangean, Sapeken, Masalembu and Talango Islands. Marine tourism was developed in Mamburit, Paliat, Sepanjang, Saobi, and Kangean Island. Natural tourism and science was developed in Saobi Island. Coral reef marine park tourism could also be developed in Raas and Gililabak Island.

Based on these conclusions there were some strategies and policies model for improving the regional development of small islands in Sumenep. The first was Cultivation Area Development Strategy. This strategy aimed to manage home site area built by their own residence becomes a good organized and liveable residential area. The second was Establishment of Protected Areas Strategy. This strategy aimed to secure the subordinate area for the protection of the hills, so the vegetation in hydrological soil can absorb water. The Port Area Development Strategy was the third one. This strategy aimed to encourage the growth of fisheries sector by increasing the scale of captured fisheries production. Fourth was Infrastructure Development Strategy to build network development and transportation facilities for support physical development in the Islands region.

The fifth was Human Resources Development Strategy. This strategy aimed to increase the welfare of coastal communities especially fishermen. The last strategy was Economic Development Strategy which was to build the economic sector as a source for revenue, equitable development and welfare of the community on coastal islands.

REFERENCES

Badrudin, R. (1999), "Pembangunan Wilayah Propinsi Istimewa Yogyakarta, Pendekatan Teoritis," *Jurnal Ekonomi Pembangunan,* 4(2), 120-132.

Deller, S. (2010), "Shift-share Analysis and TRED," The Northeast Regional Center for Rural Development Working Paper, January.

Haerudin, A. (2001), *Identifikasi Kecamatan Sebagai Pusat Pertumbuhan Wilayah di Kabupaten Soppeng 1994/1995-1999/2000*, Thesis, Gadjah Mada University.

Houston, D.B. (1967), "The Shift and Share Analysis of Regional Growth: A Critique" *Southern Economic Journal*, 33(4), 577-581.

Kuncoro, M. (2001), *Analisis Spasial dan Regional (Studi Aglomerasi dan Kluster Industri Indonesia*, UPP AMPYKPN, Yogyakarta.

Maijidi, N. (1997), "Anggaran Pembangunan dan Ketimpangan Ekonomi antar Daerah," *Prisma,* No. 3, 3-22.

Parr, J.B. (2001), "On the Regional Dimensions of Rostow's Theory of Growth," *Review of Urban and Regional Development Studies*, 13(1), 2-19.

Soepono, P. (1999), "Teori Lokasi: Representasi Landasan Mikro Bagi Teori Pemban-gunan Daerah," *Jurnal Ekonomi dan Bisnis,* 14(4), 4-24.

Soepono, P. (2000), "Model Gravitasi sebagai Alat Pengukur Hinter Land dari Central Place suatu Tinjauan Teoritik," *Jurnal Ekonomi dan Bisnis*, 15(4), 123-130.

Stevens, B.H. and C.L. Moore (1980), "A Critical Review of the Literature on Shift-share as a ForecastingT echnique," *Journal of Regional Science*, 20(4), 419-437.

Sutarno, S. (2002), *Pertumbuhan Ekonomi dan Ketimpangan PDRB Per Kapita antar Ke-camatan di Kabupaten Banyumas, (1993-2000)*, Thesis, Gadjah Mada University.

Wei, Y., F. Dennis and C. Cindy (2000), "Regional Inequality in China: A Case Study of Jiangsu Province," *Asian Economic Journal,* 52(2), 205-215.

Ying, L.G. (2000), "China's Changing Regional Disparities during the Reform Period," *Economic Geography,* 24(7), 340-352.