

RESEARCH ARTICLE

Determination of Priority Regions as The Direction of Decision-Making for Land Development of West Kalimantan Province

Ratih Fitria Putri^{1*}, Aryana Rachmad Sulistya²

¹Department of Environmental Geography, Faculty of Geography, Universitas Gadjah Mada, Indonesia

²Master Program of Geography, Faculty of Geography, Universitas Gadjah Mada, Indonesia

* Corresponding author : ratihfitria.putri@ugm.ac.id
Tel.: +62-274-6492340
Received: Mar 26, 2019; Accepted: June 21, 2019.
DOI: 10.25299/jgeet.2019.4.3.2908

Abstract

Indonesia is an archipelago country consisting of large and small islands with a large number of approximately 17,508. Some of the islands are among the border to neighboring countries. One of the islands is a border area of land that is found on the island of Borneo, especially West Kalimantan Province. West Kalimantan province is directly adjacent to Malaysia. The identical character of the Indonesian border area is largely a lagging region. Determination of priority areas is certainly needed as an effective way of developing these border areas. The objectives of the research include (1) identification of the distribution of lagging priority areas in West Kalimantan Province, (2) give recommendations related to development of lagging priority areas. Overlays of lagging region parameters and economic productivity are used to determine priority areas. The result of identification is known that Bengkayang Regency, Kayong Utara, and Melawi are the lagging priority areas. Recommendation given to the lagging priority regions are through regional development model and also based on determination of base sector.

Keywords: Land Development, Priority Region, Economic Land Productivity.

1. Introduction

Indonesia is an archipelagic country which consists of large and small islands with approximately reaches 17,508 islands. The existence of Indonesia as an archipelago country had been recognized in the world through the marine law convention of PBB, UNCLOS. Some of the islands are the border islands with the neighboring countries.

Border areas of Indonesia with the neighboring countries consist of both land and sea boundaries. Land boundaries involve Malaysia, Papua New Guinea, and Timor Leste. Sea Boundaries involve Malaysia, Singapore, Philippine, Papua New Guinea, Timor Leste, India, Thailand, Australia and Palau. One of the islands which has land boundary area is located in Kalimantan, especially West Kalimantan.

West Kalimantan is directly adjacent to Malaysia. Border areas of West Kalimantan Province involve Sambas Regency, Bengkayang Regency, Sanggau Regency, Sekadau Regency, and Kapuas Hulu Regency. West Kalimantan Province is one of the province in Indonesia which consists of 14 regencies/cities and traversed by equator, precisely in Pontianak City. The population density of West Kalimantan Province is always increasing in the period 2000-2017 (BPS, 2018) (Fig. 1).

Based on the newest data from West Kalimantan Barat Province in Figures 2017, the population of West Kalimantan Province amounted to 4,861,738 people.

The population in West Kalimantan Province is concentrated in urban areas than in rural areas, especially in Pontianak City and Kubu Raya Regency. The background of the phenomenon is likely due to economic stagnation and limited employment in rural areas (Kinggundu, 2014). Existence of various and uneven population in each regencies/cities results the difference of condition of social, economy, resources management, infrastructure, etc.

Difference of population's quality and quantity, geographical condition, and potential of natural resources in each regencies/cities of West Kalimantan Province are able to impact the inequality of economic and human development. This condition is strengthened by data that was released by central agency on statistic of West Kalimantan Province about gini coefficient of West Kalimantan Province based on the expenditure data in 2016, its gini coefficient was amounted to 0.33 which means moderate inequality. Development disparities among the regencies/cities of West Kalimantan Province in period of 2011-2015 relatively low, but it increases every year and 50% of West Kalimantan Province regions are included in the category of relatively underdeveloped regions, it counts 7 of total of 14 regencies/cities. Main factors of social and economic inequality are the distance and quality of health services, population, and limited economic empowerment. Another problems which also be a challenge for both central government and West Kalimantan provincial government is the

existence of region that directly adjacent to the other countries. The identical character of the border regions in Indonesia is most of them are the underdeveloped regions. The social-economic facilities and infrastructures in those regions commonly are more underdeveloped than the others in one region (province). Those conditions are reinforced by opinion of [Nurdjaman and Rahardjo \(2005\)](#) in [Taena \(2009\)](#) which the challenges of regional development in the regions that directly adjacent to the other countries, include geographical aspect, demography aspect, natural resource aspect, economic aspect, socio-culture aspect, etc. Effort is needed in order to able developing those border regions effectively.

Concept about the underdeveloped region have not had the standard definition until now ([Muta'ali, 2015](#)). There are some sources which define and give the indicators about the classification of a region is categorized as a underdeveloped region. BPS defined that the underdeveloped region as a region characterized by the low potential of its village, housing and environmental condition, and the less favorable demographic social position compared to the other regions. **Similar to BPS's definition, Putri (2013)** defines the underdeveloped regions as the regions with their development average are relatively lower than the other regions. Based on those definitions, it can be inferred that basically the concept of the underdeveloped region emphasizes on backwardness conditions of a region from physical, social, and economic aspect as a result from a less optimal development target in that region.

Various factors which are hipotized as the factors causing the underdeveloped regions are geographic factors, natural resources, human resources, facilities and infrastructures, disaster prone areas, conflicts, and development policies that applied in such regions. Geographic factors become the causing factor because commonly the underdeveloped regions have a long distance and access which is difficult to reach by the transport and communication network, the existence of barrier in the form of hills, the coastal area, and the other geomorphological factors. Natural resources have been a defining factor of the underdeveloped region because some regions do not have the potential of natural resources or perhaps they have the potential of natural resources, but it is only for conservation so they can not use it. Education level, knowledge, and skills which are relatively low in the underdeveloped regions cause the human resources factor also becomes the indicator to determine the underdeveloped regions. Limited facilities and infrastructures such as communication, transportation, irrigation, clean water, and another access of facilities and infrastructures which

commonly exist in the underdeveloped regions become the defining components that are necessary in assessment of the regions. Disaster prone areas, especially social disaster such as conflict prone areas and applicable development policies also contribute to give the assessment of the regions.

Mapping on determination of priority regions hopefully can be basic on decision-making, especially related to the development of the underdeveloped regions which prioritized to develop as soon as possible. Determination of priority regions in development seems like have been an effective effort to fasten the development of the underdeveloped region because most of the government in some regions has limitation in many aspects such as finance, technologies, and quality of human resources. Furthermore, the determination of priority areas is also expected to create synergism which can integrate between regions, thus obtaining better results than those obtained through the performance of each region ([Yunus, 2008](#) in [Giyarsih, 2017](#)).

Approach which can be used to determine the underdeveloped regions is scoring method. This method give the score value on each parameters that used in the determination of the underdeveloped regions. The value of scoring given in each parameters is based on the distribution of data. Three major aspects that have had significant influence to bridge the gap are mainly investment in infrastructure, investment in human capital, and more exposed & vulnerable to natural hazard ([Khondkerand Mazhab, 2015](#)). In line with that, the parameters which used in determination of underdeveloped regions are mostly similar, according to PDT (2005), consist of (1) **Aspect of community's economy** (2) **Human resources condition** (3) **Facilities and Infrastructures** (4) the ability of regional finance (5) Access and regional characteristics (6) the underdeveloped region characteristics. Those six parameters, further more, are not used overall in this research, but only parameter one, two and three which assumed have been enough to represent a region to be classified as a underdeveloped region.

Those three parameters will be combined with the economic productivity in each regencies/cities in West Kalimantan Province. Overlay between the results of weighting and calculation of economic productivity is done to know the priority regions. The overlaying process results the priority regions classification map which shows that the priority regions are the regions which have the higher priority than the other regions in one region (province). Further more, the result of mapping on priority region will help on formulating the policies that can be used to fasten the development of the regions.

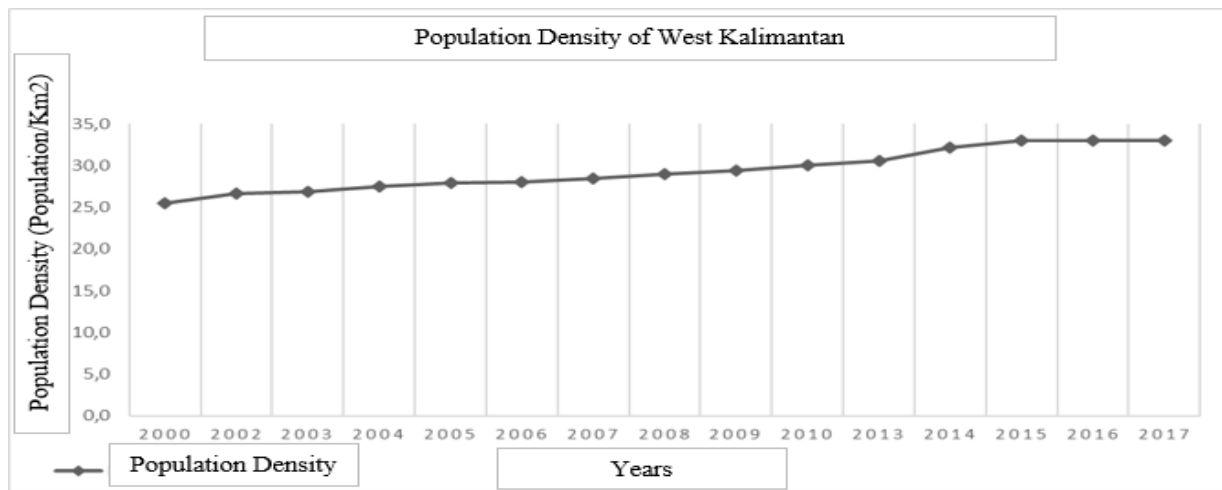


Fig. 1 Population Density in West Kalimantan Province.

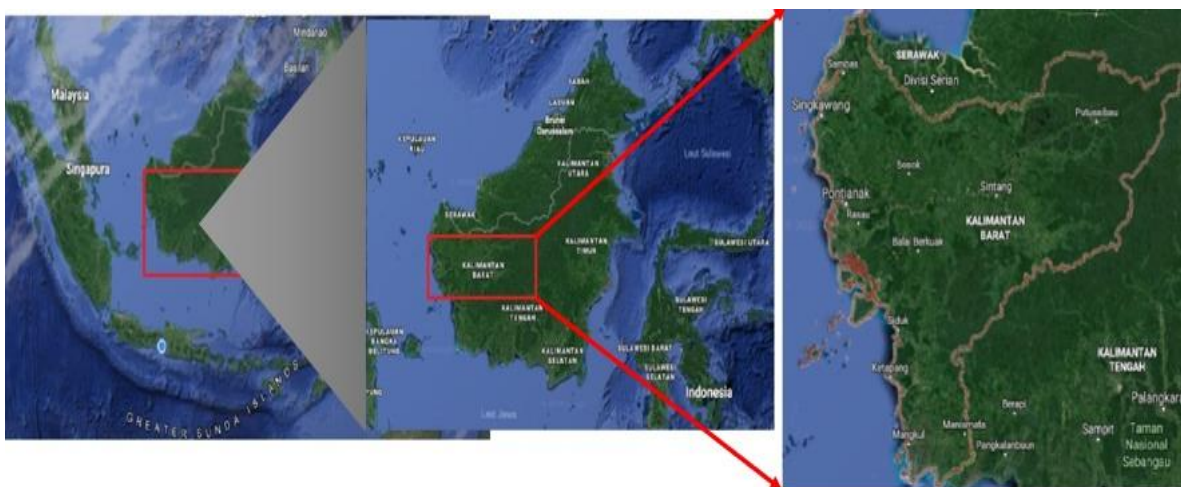


Fig. 2 West Kalimantan Province.

2. Study Area And Data

2.1 West Kalimantan Province

Kalimantan, and East Kalimantan, which has 14 regencies/cities. Astronomically, West Kalimantan Province is located between 2o08N-3005S and between 108o0W-114o10E (Fig 2). Geologically, West Kalimantan Province consists of Schwaner Mountain Complex and Melawi-Ketungau Basin.

The percentage of Schwaner Mountain is the largest compiler in West Kalimantan. Schwaner Mountain consists of three physiography, they are alluvial plains, mountains, and hills. Alluvial plains are dominated by wetland in form of swamp, peat, tidal area, and large rivers or small rivers which are used as the main line for transportation in hinterland eventhough the road infrastructure have been able to reach most of the sub-district in West Kalimantan Province. Overall, the length of Kalimantan Area which is directly adjacent to the State of Serawak, Malaysia is approximately 1,200 km which 70,58% of it is located in West Kalimantan or along more than 847.3 km and across 5 regencies, they are Sambas Regency, Bengkayang Regency, Sanggau

Area of study in West Kalimantan Province is one of the 4th largest province in Indonesia, after Papua, Central

Regency, Sintang regecy, and Kapuas Hulu Regency that involve 14 sub-districts, covering an area of 1,694 km².

2.2 Data Acquisition

Data that used are secondary data obtained through Badan Pusat Statistik (BPS) in West Kalimantan Province publication in Figures and each publication Districting Figures. Inventory data parameters include data of the condition of human and economic resources in West Kalimantan Province. The data are furthermore synthesized graphically and analyzed descriptively.

Criteria (parameters) used for the determination of underdeveloped regions, according to the Ministry of PDT (2005) consists of, (1) the economic aspect of society, (2) the condition of human resources, (3) **facilities and infrastructure**. **Society's economy** conditions illustrated by poor population percentage indicators. Human resource **criteria's** are described by labor conditions (unemployment rate), health conditions (malnutrition, infant mortality rate, and number of health infrastructure), and educational

conditions (the highest literacy rate and education of age 5+). Meanwhile, infrastructure criteria (infrastructure) are represented by decent living standard conditions such as types of wall, roof, floor, toilet, cooking fuel, and home ownership status. Additional parameters are also combined in determining the underdeveloped regions, the parameter of economic growth. The purpose of adding these parameters is to obtain more comprehensive results in accordance with conditions in the field. Moreover, the addition of parameters is also done because of the limitations of indicators in the economic aspects (scoring method).

3. Method

3.1. Underdeveloped Regions Determination Scoring

The tiered quantitative approach method is weighted by providing scores and rate for each parameter determination of underdeveloped regions. The first step of assessment is scoring analysis. The scoring model is used to represent the degree of closeness, association, or severity of a particular impact on a phenomenon spatially. A score will be given in each input parameter and then summed to obtain the degree of relevancy. The last result of the scoring system is to classify the degree of linkage of output parameters (Drobne and Lisec, 2009).

Each parameter is given a score of 1-3, where score 1 is an advanced regions, score 2 is a developing regions and score 3 is underdeveloped regions. Scoring scores are based on sturgess method. Sturges formula is done by subtracting the maximum value with minimum value of parameters and divided by the desired interval. The weight given for each parameter corresponds with the magnitude of its effect on the underdeveloped regions.

Highest rate of 4 is given on the parameters of human resources with variables of unemployment rate, education, and health. Other parameter is **society's** economy which variable of percentage of the poor. Lowest rate of 2 is given in the infrastructure parameters. The weight given on each parameter does not have a standard reference, but can be analyzed from the results of literature review and should be in accordance with the influence of determining underdeveloped regions.

The parameters of human resources and economy has the same weight as the most influential because both parameters are the basic capital in building a region. If the human quality is good then the development of the regions will run quickly and that makes the regions more advanced. On the other hand, if basic human development capital is hampered, such as difficulty to access of education, high unemployment and disrupted health will result in a rise on the number of poor populations so that the regions can be left behind from other regions. Parameters of infrastructure have the lowest weight because these parameters tend not to change much each year as well as the characteristics of living standards such as the form of houses in every regencies/cities in West Kalimantan Province are not much different.

The weight value which is determined is multiplied with the score and classified by sturgess method to result the analysis of advanced regions and underdeveloped regions.

The classification of development regions is divided into three class, if the total value of excavation is high, it represents the underdeveloped regions, meanwhile the low total value shows the advanced regions and the total value between them is classified as the developing regions. The result of weighting is classified into three categories used sturgess method. The three categories are advanced, developing, and underdeveloped regencies/cities.

The Calculation of Economic Productivity

The calculation of economic productivity is affected by the rate of economic and population growth. The subtraction between those two parameters results the degree of economic productivity in the region. Mathematically, the calculation formula of economic productivity is explained by the following Eq. (1):

$$PK = LPE - LPP \quad (1)$$

Where:

PK : Economic Productivity

LPE : Economic Growth Rate

LPP : Population Growth Rate

3.2 Weighted Index Overlay Method on Determining The Priority Regions

The determination of priority regions is done by combining (overlay) between the three parameters in determining underdeveloped regions and the economic productivity. Overlaying is done to strengthen the relation of parameters on the degree of regional development. There is no standars system on determining the underdevelope. regions from both of parameters and its techinal determination. It depends on the availability of data and the purpose of the research related to determination of regional development's degree.

Okysari (2015) in the similar research also does the overlaying with the additional parameter, they are potential of village, housing and environmental condition, population condition, and additional variabel for the rural. Overlaying from two classifications will result nine possibilities. The determination of priority regions from nine possibilities is done by the judgment based on the result of the further identification related to data that shows the regions are relevant to be classified as the priority regions to increased development. The following are nine possibilities as the result of overlaying (Table 1).

Table 1. Overlay Scores Result of Lagging Regions Towards Economic Productivity

Scoring Result	Classification Result of Economic Productivity	Overlaying Result
Advanced	High	Advanced
Developed	Moderate	Developed
Underdeveloped	Low	Underdeveloped
Advanced	Low	Low
Developed	Moderate	Developed
Underdeveloped	High	Underdeveloped
Advanced	Moderate	Advanced
Developed	Low	Developed
Underdeveloped	High	Underdeveloped

4. Result And Discussion

4.1 Scoring Determination of Underdeveloped Regions

Regency with the highest score is Bengkayang Regency with a total score of 82 (Table 5). The position of the underdeveloped region with the second lowest score is Melawi and Kayong Utara with 80 (Table 5) as a total value, both are the results of regional expansion. Other underdeveloped regions are Landak and Singkawang City (Fig. 3). Some of the reasons that may make the five regions being underdeveloped are due to human resources (represented by health and education conditions (Table 3 and 4) and poor economic conditions (represented by poor percentage (Table 2) of poor al score of 82). Second lowest score of underdeveloped region is Melawi and Kayong Utara with 80 as a total value, both are the result of regional expansion. Other underdeveloped regions are Landak and Singkawang City. Some of the reasons that may make the five regions being underdeveloped are due to human resources (represented by health and

education conditions) and poor economic conditions (represented by poor percentage of poor people), where these two aspects have a same value and the highest among the total three parameters used. Bengkayang is directly adjacent to Malaysia in the north. Accessibility in this region is still very limited, making it difficult to reach all areas of the region. It can also be the cause of the lack of facilities and affect the quality of human resources and the economy of the community. Kayong Utara and Melawi are the result of regional expansion. Melawi is one of the new region from the expansion of Sintang in 2004, while Kayong Utara is an expansion of Ketapang in 2007 (PPSP, 2013). It has not been a long time to have an administration and its own authority as a region is certainly a significant factor that causes both of them can't achieve a good development. Beside, Kayong Utara is also an archipelagic area that causes difficult access and also many remote areas. In general, geographical conditions become one of the dominant factor which makes many regions underdeveloped in West Kalimantan Province.

Table 2. Poverty Index Scoring Result

Regency	Poverty Index (%)	Score	Weight	Result
Bengkayang	6,94	1		4
Landak	13,51	3		12
Mempawah	5,52	1		4
Sanggau	4,57	1		4
Ketapang	11,72	3		12
Sintang	9,33	2		8
Kapuas Hulu	9,66	2		8
Sekadau	6,5	1		4
Melawi	12,57	3		12
Kayong Utara	9,84	2		8
Kubu Raya	5,22	1		4
Pontianak City	5,22	1		4
Singkawang City	5,76	1		4

Table 3. Human Resource Parameter Scoring Result

Regency	Unemployment		Education		Health	Weight	Result	
		Score	LRS*	SPRS**	BNS***	IMRS****	HCFS*****	Total Score
Sambas	2	2						
Bengkayang	1	3	3	1	2	2	12	48
Landak	2	2	2	1	1	2	10	40
Mempawah	2	3	2	1	1	3	12	48
Sanggau	2	2	3	1	1	2	11	44
Ketapang	1	2	3	1	1	1	9	36
Sintang	1	3	3	1	1	1	10	40
Kapuas Hulu	1	1	1	3	3	1	10	40
Sekadau	1	2	2	1	2	2	10	40
Melawi	1	3	3	1	1	2	11	44
Kayong Utara	1	3	1	1	2	3	11	44
Kubu Raya	2	1	2	1	1	2	9	36
Pontianak City	3	1	1	1	1	3	10	40
Singkawang City	2	3	3	1	2	3	14	56

*Literacy Rate Score; **School Participation Rate Score; *** Bad Nutrient Score; **** Infant Mortality Rate Score

Table 4. Infrastructure Parameters Scoring Result

Regency	Electricity (Non PLN)	Wall	Floor	Roof	Closet	Cooking Fuel	House Ownership	Total Score	Weight	Result
ambas	1	2	1	3	1	2	1	11		22
Bengkayang	2	3	3	2	2	2	1	15		30
Landak	2	2	1	1	3	3	1	13		26
Mempawah	1	1	1	1	3	1	1	9		18
Sanggau	3	2	1	1	1	2	1	11		22
Ketapang	3	2	2	1	1	3	1	13		26
Sintang	3	3	1	1	1	2	1	12		24
Kapuas Hulu	3	3	1	1	2	2	1	13	2	26
Sekadau	3	3	1	1	3	3	1	15		30
Melawi	2	2	1	1	2	3	1	12		24
Kayong Utara	1	3	1	3	3	2	1	14		28
Kubu Raya	1	2	2	1	2	1	1	10		20
Pontianak City	1	1	1	1	1	1	3	9		18
Singkawang City	1	1	1	2	1	1	2	9		18

Table 5. Classification of Developed Region.

Regency	Total Score	Classification
Sambas	70	Developed
Bengkayang	82	Underdeveloped
Landak	78	Underdeveloped
Mempawah	70	Developed
Sanggau	70	Developed
Ketapang	74	Developed
Sintang	72	Developed
Kapuas Hulu	74	Developed
Sekadau	74	Developed
Melawi	80	Underdeveloped
Kayong Utara	80	Underdeveloped
Kubu Raya	60	Advanced
Kota Pontianak	62	Advanced
Kota Singkawang	78	Underdeveloped



Fig. 3 Map of lagging area determination in West Kalimantan Province.

4.2 Calculation of Economic Productivity

Based on the calculation of economic productivity of West Kalimantan Province in 2015 that can be seen in Fig. 4, economic productivity in each region of West Kalimantan Province is different. The area that has the lowest economic productivity is Bengkayang with productivity value's only 1.49%, while the region that has the highest economic productivity is Sanggau with productivity value reaches 7.3%. Sanggau has the highest economic rate compared to other regions with value reaches 8.58% (Table 5). The higher the rate of economy in a region, the process of increasing the area's output will be faster so that the prospects of regional development the better. According to reference [Todaro and Smith \(2004\) in Muta'ali, \(2015\)](#), there are three main factors or components that affect economic growth, namely capital accumulation, population growth, and technological progress. Bengkayang has the lowest economic growth rate compared to other regions in 2015, which is 3.96%. This shows that the growth of GDP of Bengkayang is experiencing slow in the period of 2014 to 2015. The low economic growth rate causes the process of increasing output in Bengkayang runs slowly so that the development prospect of Bengkayang runs poorly. Population growth rate becomes one of the factors that

influences economic productivity in a region because if there's no productive human resources, economic productivity in the area will decrease and will increase poverty. Bengkayang has the third highest population growth rate in West Kalimantan Province in 2014-2015 under Singkawang and Ketapang with a growth rate's 2.46%. Sanggau has a relatively low population growth rate in West Kalimantan Province in 2014-2015, which is 1.27%. Based on the condition of economic growth rate and population growth rate, Bengkayang became the region with the lowest economic productivity, while Sanggau has the highest economic productivity.

Overlay For Land Priority Area Determination

Classification of priority areas through overlay of regional development maps with economic productivity of each region in West Kalimantan Province resulted that Bengkayang, Melawi and Kayong Utara are classified as priority areas (Fig. 5). In general, these three regions are quite relevant if they are categorized into areas that are prioritized for improving development. Bengkayang is a border area, while Melawi and Kayong Utara are new regions from the expansion.

Table 6. Economic Productivity Calculation Result.

Regencies/Cities	Economic Growth Rate 2015 (%)	Human Growth Rate 2014-2015 (%)	Economic Productivity	Result
Sambas	4,76	0,620904158	4,139095842	Moderate
Bengkayang	3,96	2,464003985	1,495996015	Low
Landak	5,11	1,334950425	3,775049575	Moderate
Mempawah	5,62	0,903330782	4,716669218	Moderate
Sanggau	8,58	1,276099446	7,303900554	High
Ketapang	5,53	2,532812611	2,997187389	Low
Sintang	4,57	1,43194915	3,13805085	Low
Kapuas Hulu	4,66	2,324362547	2,335637453	Low
Sekadai	5,75	0,831087035	4,918912965	Moderate
Melawi	4,7	1,923026921	2,776973079	Low
Kayong Utara	5,03	2,125249317	2,904750683	Low
Kubu Raya	6,36	1,223796665	5,136203335	Moderate
Pontianak City	4,99	1,591882253	3,398117747	Low
Singkawang City	6,17	2,673148826	3,496851174	Moderate

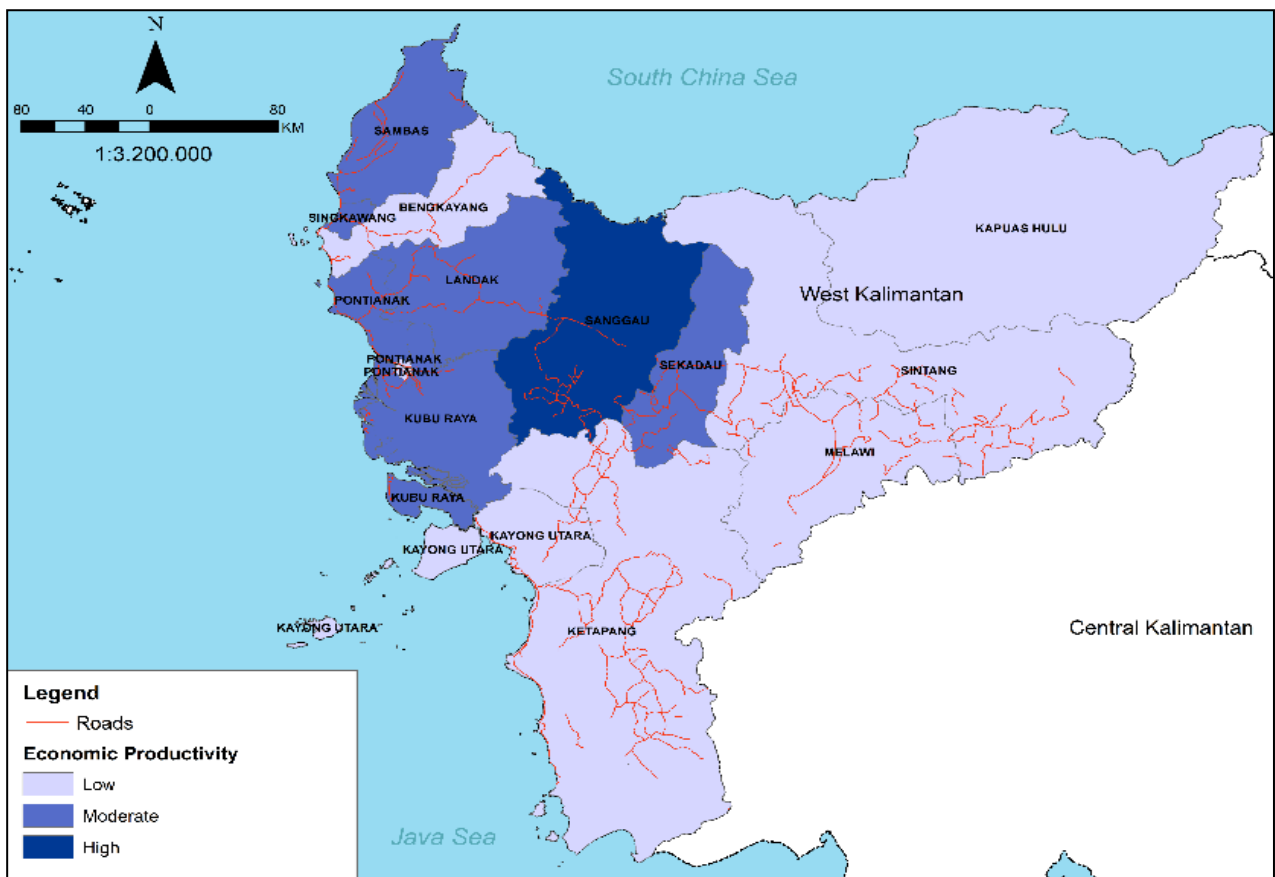


Fig. 4 Map of economic productivity in West Kalimantan Province.

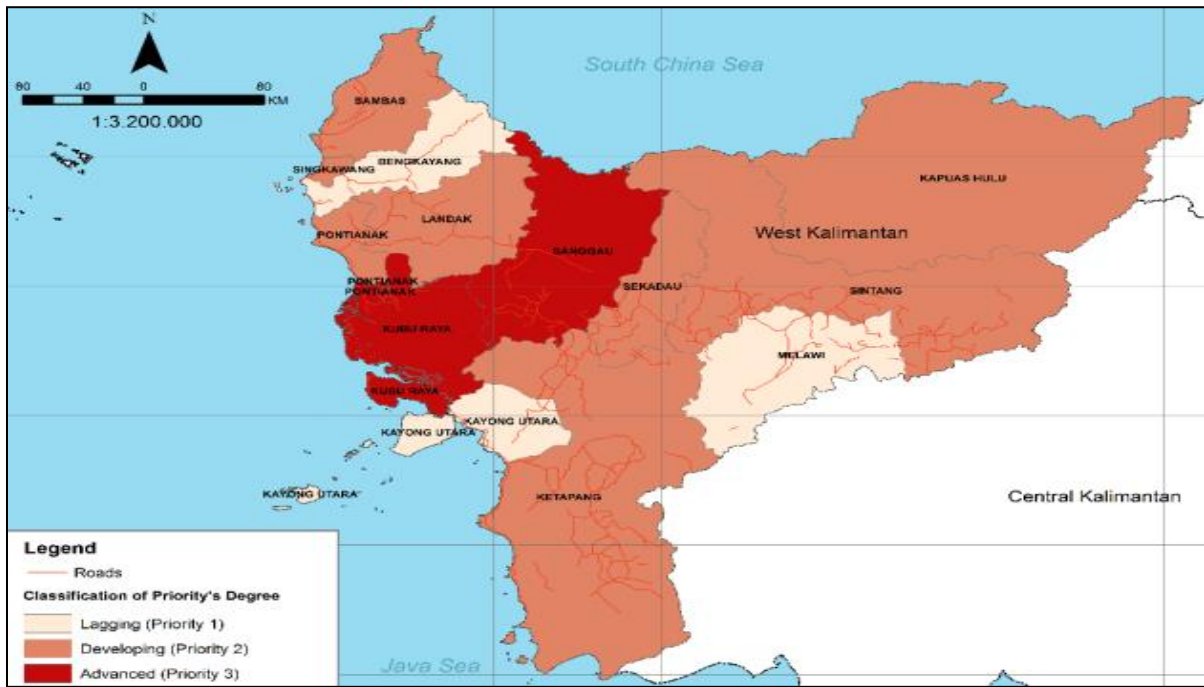


Fig. 5 Map of priority's degree in West Kalimantan Province.



Fig. 6 Classification Map of Basis And Non-Basis Sector in West Kalimantan Province Based On LQ Method

Bengkayang Regency is one of the underdeveloped regions located in north of and abutted with Malaysia. Accessibility in Bengkayang Province is limited while it makes complicated enough to reach each region and site in this regency. Those problem are the one of the causal factor for less facility which influencing human resource capability and economy of society. The need to develop of underdeveloped region based on large numbers of isolated village, hilly topography condition

which will minimize the access, and lots of swamp areas which needs more intense attention for development. Bengkayang categorized as underdeveloped region with score of 82. Indicators that contribute the most score come from human resource (health and education). The sub indicators of education are school participation rate and score of ability to read, both of those sub indicators have low score compared to other regency in West Kalimantan

Province. It has the same on health condition which represented by infant mortality rate and numbers of health facility. In addition, it has also low score for infrastructure condition. Most of the society are living in the house of bamboo and using non PLN electricity source. Parameter of economic productivity shows the similarity. Bengkayang Regency has the lowest economic productivity among others in West Kalimantan Province with score of 1,49%. This low economic productivity influences low rate of economic growth and becoming one of the drop points it is categorized as priority to be developed region.

Kayong Utara Regency consist of 6 sub-districts which all of it in border with the sea (PPSP, 2013). Kayong Utara Regency was unfoldment area from Ketapang Regency in 2017. In 2015, Kayong Utara was determined as the underdeveloped region in Indonesia based on UU Number 6 Year 2007. Parameters with bad score come from human resource indicator with the sub of parameter are education & health and infrastructure condition parameter. On the other hand, parameter for economic condition of society remains good. Economic condition represented by percentage of poor society. It has score of 9.84% while the highest score is 13.51%. In role with this score, Kayong Utara Regency positioned as the four highest percentage of poor society regency in West Kalimantan. Economic productivity of this regency has score of 2,905% and categorized above averages compared to other regency. This indicates that economic growth rate in sector is not lagged (PPSP, 2013). Furthermore, Kayong Utara Regency is archipelago type regency, each sub-district abuts on sea, hence it causing limited access to connect each sub-districts. Limitation of the access is one important point causing the underdeveloped region.

Melawi Regency included in the priority area because classified as lagging with economic productivity of 2,77%. Melawi has low score on human resource and economic condition indicator. It is shown by rate of poor society and infrastructure positioned below other regencies. Either of human resource or economic conditions indicator has the same bad score. infrastructure development can be done to improve the development of melawi district. on the other hand community-based development also needs to be done to improve the development of human resources in the region. Development Directional Step for Priority Region.

a. Directional Steps for Priority Region Based on Regional Development Theory

Muta'ali (2008) determined that strategy to develop priority region in macro scope are using theory approach such as balances growth theory, growth pole/growth centre theory, import substitutions industrialization, exported growth and nucleus industries theory. Importance and emphasize of those theory is about development region that has trickle effected to the lowest level by giving up stimulant in developing the region. Application of this theory clustered in five basis groups (Muta'ali, 2014). Those five basis groups divided to five aspects, which are

spatial study, regional economy, development of investment and infrastructure, regional management, and society management.

b. Land Development Directional Step for West Kalimantan Province Based on Basis Sector

Recommended development directional step to strengthened economic development for each regency in West Kalimantan can be done by LQ analysis. LQ method used to specialized basis sector and non-basis sector, basis sector named because the sector could meet the demand either inside the area or outside, otherwise non-basis sector named because that sector can only fulfil the demand inside the area. LQ analysis also used as regional development indicator, for example is Regional Gross Domestic Products (Tarigan, 2009). Basic point of this analysis is economic base theory which mentioned that because of industry basis produces goods and services for markets either inside or outside the area, hence export of goods and services would give high revenue for those areas. This revenue flow will probably cause higher consumption and investment and finally increase revenue and create job opportunities (Tarigan, 2005). Increasing of the revenue would high up demand in basis and non-basis sectors that would push up investment. LQ analysis used in three main sectors in West Kalimantan Province, which are agricultural, industries, and services sectors. By sector development would be more effective done by optimize on management in each sectors. Based on calculation result of base sector determination of three priority area, Bengkayang and Kayong Utara are best in agricultural sector, while Melawi are best in industrial sector. Making specialization of basis products would increase productivity in the sector and help to increase regional economy. These methods and analysis hopefully would applicable enough to manage underdeveloped and priority regions in West Kalimantan Province.

5. Conclusion

Identification of priority area determination through overlay of scores of lagging regions on the economic productivity of each region produced 3 districts covering Bengkayang, Kayong Utara, and Melawi. Development guidance in the form of application of the theory concept of development of underdeveloped regions and development of base sector. Calculation result of base sector determination of three priority area, Bengkayang and Kayong Utara are best in agricultural sector, while Melawi are best in industrial sector. Making specialization of basis products would increase productivity in the sector and help to increase regional economy. Both directions are expected to increase the development of priority area.

Acknowledgment

The authors would like to acknowledge the great support of the Department of Environmental Geography, Faculty of Geography, Universitas Gadjah

Mada who have provided suggestions for the improvement of this paper.

References

- Badan Pusat Statistik. 2015. Indeks Pembangunan Manusia. Available in: <http://ipm.bps.go.id/page/ipm>. Accessed in 2 March 2019.
- Dinas Kesehatan. 2011. Profil Kesehatan Kabupaten Kayong Utara Tahun 2010. Dinas Kesehatan: Sukadana.
- Drobne, S. and Lisec, A. 2009. Multi-attribute Decision Analysis in GIS: Weighted Linear Combination and Ordered Weighted Averaging: Informatica.
- Giyarsih, S.R. (2017). Regional Management of Areas with Indications of Urban Sprawl in the Surrounding Areas of Universitas Muhammadiyah Yogyakarta, Indonesia. Indonesian Journal of Geography 49 (1), : 35-41.
- Kementrian Negara Pembangunan Daerah Tertinggal. 2005. Strategi Nasional Percepatan Pembangunan Daerah Tertinggal. Jakarta : KPDT.
- S Khondker, Bazlul H. and MoogdhoMim M. 2015. Underdeveloped Districts Development: Background Study Paper for Preparation of the Seventh Five-Year Plan.
- Kiggundu, A.T. 2014. Constraints to Urban Planning and Management of Secondary Towns in Uganda. International Journal Of Geography 46 (1):(12 - 21).
- Muta'ali, Luthfi. 2015 (a). Pengembangan Kawasan Perbatasan.** Yogyakarta: Badan Penerbit Fakultas Geografi UGM.
- Muta'ali, Luthfi. 2015 (b). Teknik Analisis Regional Untuk Perencanaan Wilayah, Tata Ruang, dan Lingkungan.** Yogyakarta: Badan Penerbit Fakultas Geografi UGM.
- Okysari, H. Muta'ali, L. 2015. Pengembangan Wilayah Tertinggal Di Kabupaten Klaten.** Yogyakarta: Fakultas Geografi.
- PPSP. 2013. Buku Putih Sanitasi Kabupaten Kayong Utara. Available in: <https://ppsp.nawasis>. Accessed in 18 January 2019.
- PPSP. 2013. Profil Sanitasi Kabupaten Melawi. Available in: <http://ppsp.nawasis.info/dokumen/perencanaan/sanitasi/pokja/ssk/revisi/Kab.%20Melawi/Bab%20II%20SSK%20new%20sdh%20di%20QA.pdf>. Accessed in 22 February 2019.
- Putri, R.F., Bayuaji, L., Sumantyo, J.T.S., and Kuze, H. 2013. TerraSAR-X DInSAR for land deformation detection in Jakarta Urban area, Indonesia. Journal of Urban and Environmental Engineering. Vol 7(2), pp. 195-205. Doi: 10.4090/juee.2013.v7n2.195205.
- Tarigan, R. 2005. Perencanaan Pembangunan Wilayah. Bumi Aksara: Jakarta.
- Tarigan, R. 2009. Ekonomi Regional Teori Dan Aplikasi. PT. Bumi Aksara, Jakarta.
- Taena, Werenfridus. 2009. Kajian Pengembangan Ekonomi Wilayah Perbatasan Kabupaten Timor Tengah Utara dengan Distrik Enclave Oekusi. Thesis. Graduate School Program. Institut Pertanian Bogor.



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