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Analysis of Development Index of Land Border Area through Composite Index Construction

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Abstract. The land border area in Indonesia is a strategic area from a social, economic, political, cultural, and security perspective. The arrangement and development of the border area as a strategic area are needed to synchronize the policies of the central and regional governments. Even though it has several problems, currently, the development of the border area has become one of the development priorities by the government. The Development Index of Land Border Area was built to analyze development dynamics in border areas during 2018 - 2019 using Linear Aggregation Model (OECD 2008). It is used as a reference in program preparation and evaluation of central and regional government policies related to border development and management. This research was conducted in twenty-one districts in the land border area of Indonesia, covering five provinces, namely West Kalimantan (Kalimantan Barat), East Kalimantan, North Kalimantan, East Nusa Tenggara, and Papua. The dimensions used in this calculation are economic, social, infrastructure, communication technology, and the environment, as well as eleven sub-dimensions and twenty-nine variables. All observation areas have economic resources in the agricultural sector, but some areas are also tourist areas. Over ten years, the development index for Indonesia's land border areas was quite volatile but still ranged from 10- 20. During 2010 - 2019, Berau (East Kalimantan) achieved the highest development composite index of 25.4, and the lowest was Sabu Raijua (East Nusa Tenggara) achieved the lowest composite index of 19.8.

Keywords: Development index of land border area, Border area development, Development strategy

Introduction

The border area plays a dual role, both as a first point of defense and as a projection of the socio-economic situation in a country. Giroux (2015) emphasizes that the management and development of the border area as a strategic area is necessary so that this region develops and reduces regional inequality with other regions. The development of this border was not solely due to Nawacita's mandate, but it was carried out because the border area also had a very vital and strategic meaning, both from the point of view of defense and security, as well as from an economic, social and cultural point of view as explained by Cassidy (et al. 2017). The existence of borderless and reborder phenomena (reviewing the function

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of border areas) can no longer be separated. These concepts have been applied in European countries as part of globalization, which removes national borders to anticipate more significant economic activity and benefit the two bordering regions. This concept also turns out to encourage prosperity, which leads to prosperity in both border areas (Nguyen et al., 2019). Nguyen's concept is in line with the development paradigm adopted by the Indonesian government, and it has been known as a paradigm shift in border area management: from being inward-looking to outward-looking. In the context of accelerated growth in lagging regions, Patridge (2018) explains that the development of border areas is a must and urgent. The main reason for the development in border areas is that the gap between border areas and neighbouring countries is increasingly apparent. If this is not considered, it will lead to threats to national security and defence and economic disparities in society (Floerkemeier 2021).

Furthermore, Grant (2018) emphasizes that the border area is a strategic area for national defence and security. The potential of border areas has enormous economic value, especially for natural resources (forest, mining and minerals, fisheries, and marine) that stretch along and around the border. Most of the potential natural resources have not been managed. Some are conservation areas or protected forests that have value as "world lungs" (world heritage) that need to be preserved and protected. This sizeable regional potential is inversely proportional to the progress of development in the border area. Until now, the economic conditions of most areas in the border area are still relatively left behind compared to development in other regions. There is a development gap in the border area with neighbouring countries (Mulya, 2021). This condition is generally caused by the limited availability of socio-economic facilities and infrastructure such as transportation, telecommunications, housing, trade, electricity, clean water, education, and health facilities and infrastructure. Limited socio-economic facilities and infrastructure in the border area have resulted in minimal investment activities, low optimization of natural resource use, low job creation, difficulty developing growth centres, isolation of regions, community dependence on socio-economic services from neighbouring countries, high cost of living, and low quality of human resources (Priyarsono, 2017). At the same time, the National Agency for Border Management (BNPP) emphasized that the government's vision in developing border areas is to make the border area between countries a safe, orderly area, a gateway to the state, and a centre of sustainable economic growth, to increase the welfare of local communities and guaranteeing the unitary state of the Republic of Indonesia. This vision is the basis for formulating policies and strategies for developing border areas that aim to improve the economy in the region, reduce inequality with the surrounding areas, and synergize with regional developments in neighbouring countries.

To accelerate the development of border areas, the government has issued policies and regional development programs to increase development. These policies and programs aim to accelerate the development of border areas and are supported by a new paradigm in viewing border area problems from inward-looking to outward-looking. Several policies, including the derivative programs that the government has issued regarding borders, are shown in Table 1.

Various policies above are expected to achieve development goals in the border area. However, the development of border areas has not shown significant results over the last ten years compared to non-border areas. In contrast, at the same time, border areas get special treatment through government policy. Here is an average percentage indicator of the performance of border areas when compared to non-border areas during 2009 - 2019 (Table 2).

Methodology Research

Research Site

This research was conducted in twenty-one districts and five provinces bordering the land with neighboring countries. The detail of the districts and provinces are in table 3.

Operational Variable

This development index of land border area formation uses five dimensions, 11 sub-dimensions, and 29 variables. Table 4 describes the operational variables used.

Table 1
Government Policies Related to Border Areas

No.	Policy / Program	Executor/Maker
1	Presidential Regulation No. 12 of 2010 concerning the Establishment of the National Border Management Agency\	Government of Indonesia
2	Presidential Regulation No. 31 of 2015 concerning the Spatial Plan for the State Border Area in Kalimantan	Government of Indonesia
3	Presidential Regulation No. 33 of 2015 concerning Spatial Plan of State Border Areas in Papua	Government of Indonesia
4	Presidential Regulation No. 179 of 2014 concerning Spatial Plan of State Border Area in NTT	Government of Indonesia
5	Chairman of BNPP Regulation No. 3 of 2017 concerning State Border Management Action Plan 2018	BNPP
6	Grand Design of State and Border Boundary Management in 2011-2025	BNPP
7	Regulation No. 1 of 2015 on State Border Management Master Plan 2015–2025	Ministry of Trade
8	Strategic plan of the Ministry of Trade in 2015 -2019 Presidential Instruction No. 6 of 2015 on Acceleration of Development of 7 Cross-Border Posts	Ministry of Public Works
9	Presidential Regulation No. 179 of 2014 concerning Spatial Plan of State Border Area in East Nusa Tenggara Province (NTT) Regulation No. 1 of 2014 concerning Regional Medium Term Development Plan (RPJMD) of East Nusa Tenggara (NTT) Province year 2013-2018	East Nusa Tenggara (NTT) Local Government
10	Spatial Plan of State Border Area in East Nusa Tenggara Province (NTT) Regulation No. 1 of 2014 concerning Regional Medium Term Development Plan (RPJMD) of NTT Province year 2013-2018	East Nusa Tenggara (NTT Local Government
11	Provincial Regulation No. 1/2011 on Spatial Plan/RTRW of NTT Province year 2010-2030	East Nusa Tenggara (NTT Local Government

Table 2
Percentage Comparison Average Performance Indicators of Border and Non-Border Development in 2009-2019

Development Performance Indicator	West Kalimantan		East Kalimantan		North Kalimantan		Papua		ENT (NTT)	
	BA	NBA	BA	NBA	BA	NBA	BA	NBA	BA	NBA
GDP	4,82	5,81	3,25	2,45	6,06	6,64	6,14	4,98	5,01	9,40
HDI	1,06	0,73	0,96	0,75	12,8	12,81	1,13	1,21	0,82	0,86
Poverty Rate	0,17	0,78	0,42	-2,17	0	0	1,91	0,63	1,85	,31
Gini index	8,87	10,02	1,5	1,34	0	0	1,85	115	0	0

BA: Border Area, NBA: Non Border Area
Source: BPS, data processed

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Table 3
Research Location

No	Province	Region
1	West Kalimantan	Sambas,Bengkayang, Sanggau, Sintang Kapuas Hulu
2	East Kalimantan	Kutai Barat, Berau
3	North Kalimantan	Malinau, Nunukan
4	East NusaTenggara	Kupang, Timor Tengah Utara, Belu, Alor Rote Ndao, Sabu Raijua
5	Papua	Merauke, Jayapura, Boven Digul, Asmat Pegunungan Bintang, Supiori

Table 4
Operational Variables of Development Index of Land Border Area

Dimension	Sub-Dimension	Variable	Unit
Economi	Income and Urbanisation	Percapita expenditure	Rupiah
		GDP per capita	Rupiah
	Employment	Worker in non formal sector	Percentage
		Fulltime worker	Percentage
		Workforce	Percentage
		Unemployment Rate	Percentage
	Regional financial capabilities, investment	Regional income ratio	Percentage
		Contribution of PMTB to GNP	Percentage
		Tertiary sector contribution to GNP	Percentage
Social	Education	Average school duration	Percentage
		School term expectation	Percentage
		Junior school partisipation rate	Percentage
		Middle school partisipation rate	Percentage
		High school partisipation rate	Percentage
	Healthy	Life expectancy	Percentage
		Healthy population	Percentage
	Population	Population growth ratio	Percentage
		Not poor population	Percentage
	Social	Criminality ratio	Percentage
Infrastucture	Education	Junior school to building ratio	Percentage
		Middle school to building ratio	Percentage
		High school to building ratio	Percentage
	Health infrastructure	Number of health centre	Unit
		Number of medical personel	Person
	Public service	Household electricity users	Number of household
		Rice fields harvest	Hectares
		Paved road length	Kilometer
		Financial institution ratio	Percentage
Information technology and communication	Communication	Number of post office	Unit
Environment		Area of protected forest	percentage

Analysis Methodology of Composite Index of Land Border Region

A *composite index* is a qualitative and quantitative measure obtained from measuring observation units located in a particular area (OECD, 2008). This index is usually used to view and analyze changes between observation units over time as the basis for determining policy priorities. An index can be absolute data, proportion or percentage, rate or rate, ratio, or comparison. This composite index is usually used to measure multidimensional, complex concepts and sometimes covers various fields such as development, technology, social, economy, health, communication, environment, and others. The formation of the development index of land border area was built using Linear Aggregator Model (LAM) through the following steps: (1) Theoretical Framework. This phase builds a frame of mind and creates a combination of various variables that are possible to be used in the formation of composite indices according to the desired objectives; (2) Data Selection. The data used is measurable, has relevance to the phenomenon to be studied, and pays attention in case of data scarcity; (3) Amplified missing data, either utilizing average value or by interpolation. As for data whose availability is not continuous using specific year data, assuming the changes are not very significant; (4) Normalization of indicator data, normalization of data using Scoring, Z-score, or Min-Max techniques: (5) Calculating weights on each indicator. This phase uses the Method of Factor Analysis or Discriminant Analysis; (6) Calculating the composite index by using the Additive Aggregation Model and geometric Aggregation Model. The stages in calculating the development index of land border area adapt the calculations made by the OECD with the following rules:

1. Data Normalization with Max-Min (Scaling) Method. The principle of the Min-Max (Scaling) technique is to equalize the units of various indicators used by looking at the position of the indicator observation value against the highest and lowest values.

$$S_q^t = \frac{X_q^t - \min_c(X_q^t)}{\max_c(X_q^t) - \min_c(X_q^t)}$$

Description:

S_q^t = Scaling Value

X_q^t = q variable base number in year t for district c

$\min_c(X_q^t)$ = Lowest baseline data from observations

$\max_c(X_q^t)$ = Highest baseline data from observations

2. Calculating weights on each indicator. The calculation of weights is done by factor analysis. *Factor analysis* is a technique used to look for factors capable of explaining the relationship or correlation between various independent indicators observed. The factor analysis formula is:

- = +

Description:

μ_i = average variable i

ε_i =specific factors to – i

F_j = common factor to- j

l_{ij} = loading from variable to – i on j factor

m = many factors used

3. Calculating Composite Index

A. Additive Aggregation Methods. This method sums all the indicators that have been standardized and have the same units. The formulas in this method are:

CIA =

Description:

CIA = *Composit Index Additive*

qc = standardized variables

B. Geometric Aggregation Methods. This method is used because the average measure is more responsive to the inequality of development achievements, where if there is one low indicator, then the indicator will not be covered by other indicators that have a high value. The general formula of this calculation is as follows:

CGI = X 100

Description:

CIG = Composit Index Geometrik

ID_1 = Dimension Index 1

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ID_2 = Dimension Index 2

ID_3 = Dimension Index 3

ID_4 = Dimension Index 4

ID_5 = Dimension Index 5

Huh (2018) explained that the index value is in the range of 10-100, where the higher the value or the closer to the value of 100, the better the development in the area that becomes the object. While low or near 10 results indicate that the development has not shown maximum results.

Results and Discussions

West Kalimantan

Border Area in West Kalimantan Province covers five districts namely Sambas, Bengkayang, Sanggau, Sintang, and Kapuas Hulu. The results of analysis of development performance in West Kalimantan Province during 2010-2019 show a positive growth rate of development. The 10-year average stands at 21.2 – 25.8. Table 5 describes the development of the composite index of land border areas in West Kalimantan.

Kapuas Hulu ranks as the highest composite index, and the lowest is Sambas. Kapuas Hulu has advantages in the agricultural and trade-economic sectors, hotels, and restaurants. This is because, in this sector, there is a very large absorption of labor so that the unemployment rate can be suppressed (Supianto, 2017). Besides, forest products in Kapuas Hulu are the largest source of income for PAD, in meranti wood, mixed jungle, and beautiful wood. Kapuas Hulu also has advantages in the fishery sector, namely the habitat of Arowana fish and other ornamental fish sourced from Lake Sentarum. This lake is also a tourist attraction that is held annually at art festivals. In comparison, Sambas is one of the regencies in West Kalimantan whose source of income is sourced from cultural tourism. Cultural tourism in Sambas is quite lively but does not happen all year round but periodically.

East Kalimantan

This province has two districts directly adjacent to neighboring countries, namely West Kutai and Berau districts. The 10-year average stands at 25.2 - 25.4. Berau is the district with the highest score of 25.4.

As a district with biological resources and a high potential for natural resources,

Berau is one of the main supporters of achieving several important targets for the development of East Kalimantan Province. Berau regency has a strategic role in the field of distribution and flow of goods and services. Closer access to the capital of North Kalimantan Province makes its advantages in the economic development of Berau Regency when compared to other districts/cities in the province of East Kalimantan. Berau district has three strategic areas, namely the National Strategic Area, Provincial Strategic Area, and District Strategic Area.

Kutai Barat was first on the 2019 rank. From 2010 -2019, the development index ranged from 24.0 – 28.9. The most significant regional revenue of the Kutai Barat regency is sourced from tourism. The attractions of Kutai Barat are Lake Tolan, Lake Jumping, and Dayak traditional village tourism. Kutai Barat regional income consists of regional native income (PAD), balanced funds, and other legitimate income. However, the proportion of the balancing fund component is considerable, and the proportion of PAD components is relatively small. This condition shows the high level of dependence of West Kutai on revenues from outside the region (RPIJM 2016-2021). Table 6 shows the development index results

Table 5
West Kalimantan Land Border Region Composite Index 2010 – 2019

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Rank 2019
Sambas	21.2	22.4	22.4	23.2	24.4	24.4	24.8	25.1	25.4	24.2	5
Bengkayang	23.5	23.7	24.0	24.4	25.8	24.7	24.8	25.1	25.1	24.1	4
Sanggau	24.1	23.7	24.5	25.0	25.7	25.4	25.1	25.8	25.4	24.8	3
Sintang	22.3	23.1	23.7	26.0	26.7	26.1	25.5	25.1	25.4	25.0	2
Kapuas Hulu	24.4	24.6	24.6	24.5	26.4	26.0	26.1	26.1	25.9	25.3	1

Source: Data processed

Table 6
Development Index of East Kalimantan Land Border Area 2010 – 2019

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Rank 2019
Berau	23.8	24.3	24.9	25.1	24.7	25.8	25.8	26.1	26.4	27.3	2
Kutai Barat	24.0	24.1	24.4	24.8	24.7	24.9	24.5	25.2	26.2	28.9	1

Source: Data processed

Table 7
Composite Index of North Kalimantan Land Border Region 2010 – 2019

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Rank 2019
Nunukan	22.8	23.7	23.3	23.2	24.7	24.4	25.1	25.2	25.6	25.6	2
Malinau	22.6	22.6	22.3	22.3	23.6	24.1	23.8	23.6	23.6	24.3	1

Source: Data processed

of the east Kalimantan land border area.

North Kalimantan

North *Kalimantan* is a province resulting from the expansion of East Kalimantan, which was ratified in the plenary meeting of the House of Representatives based on Law No. 20 of 2012. From the five districts/ cities, only two districts are directly adjacent to neighbouring countries, namely Nunukan and Malinau. The development index of land border areas in North Kalimantan ranges from 22.3 – 25.6. Malinau was ranked first in 2019 and followed by Nunukan (table 7). Malinau is noted to have economic tensions in the agricultural sector (BPS, 2018), especially the forestry subsector. At present, Malinau is developing the economic potential of locally-based agriculture by involving indigenous leaders and local communities. At the same time, Nunukan is one of the areas on the border that has plantation potential and focuses on oil palm development. Potential in the future, the local government of Nunukan district will make palm oil the region's flagship.

East Nusa Tenggara (ENT / NTT)

East Nusa Tenggara Province is one of the provinces bordering the land with East Timor and the district directly adjacent to seven districts, namely Sabu Raijua, Sumba Timur, Timor Tengah Utara, Kupang Rote Ndao, Alor, and Belu. Sabu Raijua regency has the smallest index value of 14.5, and the highest is Belu district of 23.0. Structurally, the economy in NTT is still dominated by agriculture, forestry, and fisheries. However, the economy in the province is generally lower than the Indonesian average, with inflation of 15 % and an unemployment rate of 30 %. East Nusa Tenggara local government is focused on developing the economy to reduce inflation and the unemployment rate.

This policy is massively carried out in the district.

The source of regional income in the Sabu Raijua district comes from agriculture, but the economy of this district throughout the year is supported by DAU and DAK funds. While Belu, one of the districts directly adjacent to East Timor, has fertile soil and is very suitable for agriculture and livestock. Belu's progressive condition made the people of East Timor come and conduct economic transactions in Belu. The ease of entering neighbouring countries for two adjacent areas in the border area makes the Belu economy very developed. The complete development index of land border areas in East Nusa Tenggara is shown in Table 8.

Papua

Papua Province has seven districts directly adjacent to neighboring countries, namely Merauke, Boven Digoel, Pegunungan Bintang, Keerom, Supiori, and Kota Jayapura. Papua's

economic potential comes from agriculture, farming, and animal husbandry. The biggest difficulty in Papua is the distance and terrain that is difficult to travel so that it has to use an airplane. This resulted in the marketing system of the flagship product being hampered. However, residents of neighboring countries (Papua New Guinea)

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Table 8
Composite Index of East Nusa Tenggara Land Border Region 2010 – 2019

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Rank 2019
Sabu Raijua	14.5	19.9	18.3	20.1	20.3	19.9	21.3	21.9	21.5	21.2	5
Sumba Timur	18.8	19.8	20.0	19.6	20.5	20.3	20.9	21.1	21.8	21.7	3
Timor Tengah Utara	20.7	21.2	21.4	20.8	21.4	21.2	21.0	22.2	21.9	21.9	2
Kupang	21.6	21.7	21.7	19.9	21.7	20.7	21.3	22.3	21.4	21.7	3
Rote Ndao	21.0	21.6	21.4	21.6	21.2	21.6	21.2	22.1	21.6	21.6	4
Alor	21.2	2.11	21.5	21.3	21.6	21.8	21.6	22.6	21.4	21.9	2
Belu	21.4	21.5	21.9	22.3	21.8	21.0	22.1	22.7	22.3	23.0	1

Source: Data processed

conduct economic transactions in the Papua region. This condition certainly provides economic benefits for Papua. In addition, Papua, as one of the land border areas, has different problems than other areas, such as defense and security. Papua's border area is one of the developed areas. If we look at the development index of Papua border areas ranging from 14.6 – 27.1 throughout 2010 – 2019 (table 9), volatile conditions are experienced in all districts in Papua. Merauke district occupies the top spot in the composite index because, for many years, the district has worked hard to lower the poverty rate and increase the region's economic growth through increased agricultural production.

In addition, Merauke is a district that is directly adjacent and more economically advanced than neighboring countries; economic trade in this region is quite rampant and can positively affect this district. On the contrary, Pegunungan Bintang district is one of the land border areas, but it has a high poverty rate. BPS noted that economic growth in the range of 2017 - 2019 slowed compared to the previous year.

Discussions

Typology of Land Border Areas

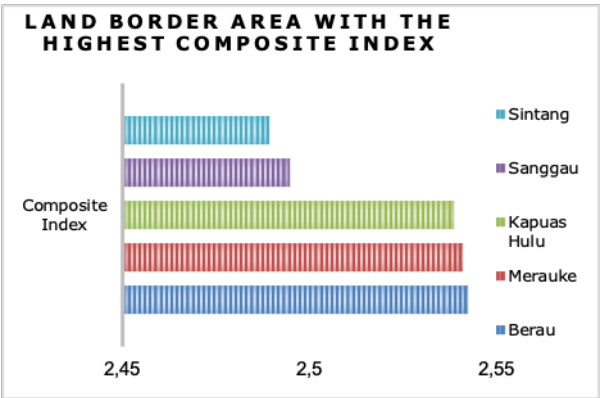
Five border areas have the highest composite index values: Berau, Merauke, Kapuas Hulu, Sanggau, and Sintang. These five regions have the characteristics and advantages of different local products. If studied further, the above five regions also have strategic support in the form of demographic factors, economic potential, facilities, and infrastructure targeting areas capable of developing. Figure 1 shows the highest result of the composite index of land border areas.

Typology of border area development is a way of grouping the character and characteristics of borders in some speakers that have similar characteristics and approaches so that it can be used to conduct

Table 9
Composite Index of Papua Land Border Region 2010 – 2019

Region	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Rank 2019
Pegunungan Bintang	16.5	14.8	14.6	14.7	17.0	18.3	18.8	18.6	18.2	18.2	7
Asmat	18.6	16.6	17.4	16.0	18.8	18.5	19.9	19.1	19.1	19.0	6
Boven Digul	19.5	19.9	19.7	19.4	21.2	21.0	21.1	21.2	21.3	22.1	5
Supiori	21.9	21.4	20.4	19.5	20.7	21.0	21.7	22.8	22.6	23.2	4
Keerom	21.8	20.6	20.8	21.4	23.8	23.4	24.2	23.9	23.8	24.6	3
Jayapura	23.3	23.5	23.9	22.1	23.7	24.2	24.9	24.6	25.2	25.4	2
Merauke	22.9	26.0	24.2	25.3	28.1	26.2	26.2	24.2	27.1	26.0	1

Source: Data processed



Source: Data Processed

Figure 1. Land Border Area with Highest Development Index

a system of efficient management of border areas by existing potentials and problems. This typology division is useful for policy determination and synchronization of development programs between the central and local governments in the future. The development index value above shows the division of border areas over the top two main typologies. The typology formed is based on economic development, namely the Border Region of Kalimantan and Papua – East Nusa Tenggara. The typology is on table 10.

Fluctuations in Development Index

The above research results show that the development index of border areas for ten years continues to fluctuate based on regional conditions and central government policies. When referring to Huh (2018), the development index figures produced by border counties range in numbers 10 - 20. Of course, it is still far from the standard set, which is 10 - 100. Nevertheless, the development index changes of each district are quite dynamic. Figure 2 illustrates that the development index of the border area is very dynamic.

In general, a fluctuating and low development index of border areas due to the undeveloped economic structure of the region is resilient and competitive. The causes include the unbalanced distribution of the population and the integration of infrastructure systems in the border area. Massive infrastructure expansion has taken place in the last five years, but further efforts are still needed to reach more regions and connect growth centers with their buffer areas (Priyarsono, 2021). When associated with the dimensions used in this study, namely economic, social, infrastructure, communication, and environment are seen quite diverse conditions.

An area may have good economic conditions (seen from GDP), but the environment and communication are low enough to make the index of the area low.

Composite Index as a Tool of Synchronization

In the Grand Development design of border, area management has three main domains aimed at the integrity, sovereignty, and territory of the unity of the state (Figure 3). The three domains have a scope: (1) The development of border areas must provide legal certainty about the scope of state territory, management authority, and sovereign rights related to the delineation of state borders; (2) The development of

Table 10
Typology of Land Border Areas by Composite Index

Characteristics	Border Region Typology	
	Kalimantan	**Papua and East Nusa Tenggara**
Economy	Large and small companies as economic driving motors	The driving motor of the economy is individual and moves naturally.
Regional Development	Lower than Malaysia	More developed than Papua New Guinea and East Timor
Competitiveness	Lower than Malaysia	Higher growth than Papua New Guinea and East Timor
Community Movement	People's movement to-wards Malaysia	Movement of Papua New Guineans towards Papua and East Timor towards East Nusa Tenggara
Featured Products	Agriculture, forestry, and tourism	Agriculture and plantations

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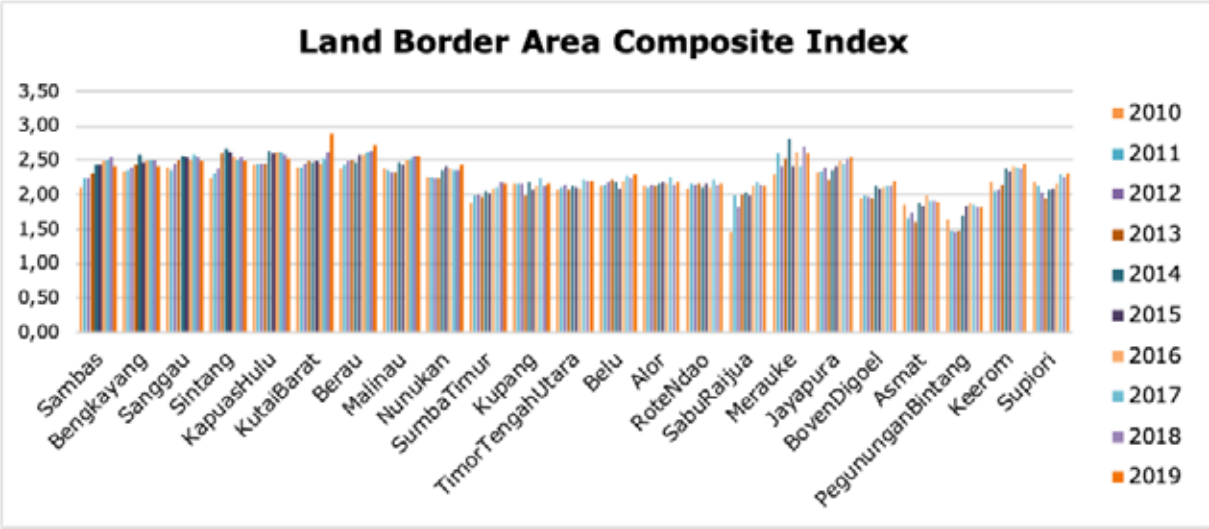

Source: Data Processed

Figure 2. Development Index of Land Border Area

border areas aims to improve welfare by increasing regional growth and providing infrastructure facilities and infrastructure services to develop an area; (3) The development of border areas is intended to improve the security of border areas, especially from illegal trading, illegal mining, illegal logging, human trafficking, and other crimes (Muta'ali, 2014).

Management Domain

Failure of development programs in achieving their goals is often not due to errors in the program and its policies, but often due to asymmetric information and lack of responsiveness to changes in the development paradigm (Rustiadi, 2015). Development planning and implementation are very dynamic and continue to develop. The main objectives of land border area development planning are essential to produce three common goals: (i) efficiency, (ii) community fairness and acceptability, and (iii) sustainability. The efficiency target refers to economic benefits, wherein in the context of the public interest, the utilization of resources is directed to the greatest prosperity of the people (public). The border area as a physical matrix must embody justice and involve community participation. Therefore the planning that is drawn up must be acceptable to the community. Regional planning should also be oriented towards a physical-environmental and social balance.

Regional governments play an essential role in developing border areas and have a strategic position in regional planning. At the same time, the central government also has programs and policies to develop border areas. Overlapping programs and policies between institutions, centres, and regions resulted in the development goals of the border areas not being as expected. The composite index of border areas becomes a tool for synchronization to bridge the overlap of policies and programs between institutions, inter-ministerial, and between the centre and regional government. Planned policies and programs should refer to composite indices to avoid overlapping programs.

Source: Muta'ali, 2014

Figure 3. Country Boundary

Conclusions

Development index measurement of border areas becomes essential to measure the success of a development. This index is a measurement in the form of composite statistics (combined) that describes the success of an area in carrying out development. The higher the border area index figures show, the better the development conditions in a border area. The index of land border areas in Indonesia

ranges between the numbers 10 and 20.5. The range of composite index numbers is small when referring to Huh (2018). If associated with Unfang-Law No. 25 of 2004, the National Development Planning System aims to: (1) support coordination; (2) create integration, synchronization between central and regional government functions. It is expected that the development of border areas should refer to the two things above. Hopefully, there will be an increase in the welfare of the community and a reduced regional disparity.

The existence of a composite index of land border areas is expected: (1) to be a means of liaison for central and local governments to determine the right and targeted programs and policies for border areas, (2) the composite index of land border areas is an important indicator to measure success in border area development efforts, (3) for Indonesia, the composite index of border areas is strategic data because, in addition to being a measure of government performance, this index is also used as one of the allocators of the determination of the General Allocation Fund (DAU) and DAK (Special Allocation Fund) from the central government to the local government.

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