International Journal of Multicultural and Multireligious Understanding

http://ijmmu.com
editor@ijmmu.com
ISSN 2364-5369
Volume 10, Issue 4
April, 2023
Pages: 241-263

Blue Economy Zone Development Strategy Using the Pentahelix Approach

Novi Theresia Kiak; Marselina Ratu

University Nusa Cendana, Kupang, Indonesia

http://dx.doi.org/10.18415/ijmmu.v10i4.4461

Abstract

This study aims to analyze the blue economy area development strategy using the pentahelix approach in Sulamu District. This study uses primary data through interviews with 8 informants who are officials of the Kupang district government, village officials, and the community, using Analytical Network Process (ANP) analysis. The results of the study show that the priority factors in the development of the Blue economy in Sulamu District are environmental (0.00244), social (0.00188) and economic (0.00056) sequentially. While the priority role of pentahelix in the development of the Blue economy sequentially is the role of the government (0.000369), the role of academia (0.000183), the role of the private sector (0.000169), the role of the media (0.000033), the role of society (0.000016) . Some of the blue economy development strategies with the pentahelix approach that can become input for the Kupang district government are developing the National Fish Logistics system program, increasing business cooperation through partnerships, developing regional economies based on large pelagic capture fisheries technology, developing export-oriented aquaculture with commodities featured include shrimp, lobster, crab, and seaweed; and development of aquaculture villages in accordance with local wisdom to alleviate poverty while protecting high-value economic commodities from extinction with a blue economy strategy.

Keywords: *Strategy; Blue Economy; Pentahelix*

Introduction

Blue economy-based maritime policies were reaffirmed during the reign of President Joko Widodo which was in line with his vision of making Indonesia a World Maritime Axis. Indonesia has aligned the *blue economy* with several related policies, particularly in the RPJMN. This alignment was carried out because it relates to global commitments, namely sustainable development or SDGs. The principles in *the blue economy* are very relevant to be applied or synergized with Indonesian policies because this concept can provide solutions to problems such as unemployment, food problems and poverty. In addition, *the blue economy* is a combination of the concepts of development and environmental sustainability.concept *blue economy* is capable of connecting economic, social and environmental values. *The blue economy* will be able to drive economic growth and provide a large portion for people who live on the coast by enjoying resources without destroying ecosystem values, namely being *environmentally friendly*, but also becoming *multiple cash flows*.

The concept of developing *a blue economy* is an interesting phenomenon for regions that have natural resources, especially in the field of fisheries. Determination of areas that remain sustainable is also the main point in improving the regional economy.area development document *blue economy* is urgently needed to become a reference in the economic, social and environmental development framework. Kupang Regency with an area of sea waters of approximately 3,278.25 km2 with a coastline length of approximately 442.52 km, as well as an aquaculture area with an area of ± 1,714.20 Ha which can be developed for inland fisheries, until now it is still in the marine and fisheries sector. successfully processed into a regional leading sector, (RPJMD, 2019). The realization of the new blue economy concept was proclaimed through the RTRW by making several areas marine conservation areas. The Kupang Regency Government has planned a spatial layout pattern until 2032. Planning also involves expanding the conservation area. Aquaculture Area ± 1,714.20 Ha Districts of Central Kupang, Taebenu, Takari, East Kupang, Amabi Oefeto, East Amabi Oefeto, Sulamu, South Semau, East Amarasi, South Amarasi and all Amfoang mainland districts Fish Processing Areas. Fish landing base area (PPI) in Semau District; b. Fish landing base area (PPI) in West Kupang District; c. Fish landing base area (PPI) in Sulamu District; and D.spatial plan for fish landing bases (PPI) in East Amfoang and East Amarasi Districts, Sulamu District is included as a Regency Strategic Area, namely a strategic area of economic function and environmental carrying capacity function. With this function, Sulamu has also been designated as a Special Economic Zone (SEZ) and a Minapolitan area. Likewise with the distribution of the potential that is owned in the region, Sulamu has also been designated as a Kupang Bay Water Tourism Park. The strategy for increasing the fisheries sector is considered relatively appropriate to increase competitiveness through a cluster approach (Daryanto, 2010). The cluster strategy offers more effective and comprehensive economic development efforts. This effort was made to increase efficiency and effectiveness by reducing the cost component from upstream to downstream in the production of a commodity, so that the Sulamu region is formed as a rural area as a regional economic center unit and is able to provide a multiplier effect for the surrounding*areas*.

Aquaculture is still the foundation of Indonesia's marine and fishery production. The potential of the land owned is still very large to be developed, which includes ponds, pools, public waters, rice fields, and the sea. The combination of the existing potential with the availability of prospective technology can certainly support increased production. The recent increase in aquaculture activity has become a concern of various parties, especially the issue of the impact it has on the aquatic environment. The impact of cultivation activities must be minimized or even eliminated. Therefore, all aquaculture activities must be environmentally sound so that aquaculture activities can be sustainable. In order to control the development of aquaculture that is not environmentally friendly, the government has formulated and socialized appropriate rules, including good fish farming methods (CBIB) and the development of environmentally sound aquaculture (ecosystem approach to aquaculture).

The Blue Economy is a development approach that targets at least three interests, namely economic growth, community welfare and environmental health. Weak participation and institutional systems at the community level in supporting various potential productive activities in the fisheries sector, both capture fisheries and coastal cultivation which are quite large, with the development of *blue economy* can be carried out through the synergy of several related institutions as in the pentahelix model which is based on local wisdom, of course alone cannot be separated from the collaboration between actors involved in the *blue economy*. Therefore, *the Blue Economy* is a development approach that targets at least three interests, namely economic growth, community welfare and environmental health. Weak participation and institutional systems at the community level in supporting various potential productive activities in the fisheries sector, both capture fisheries and coastal cultivation which are quite large, with the development of *blue economy* can be carried out through the synergy of several related institutions as in the pentahelix model which is based on local wisdom.

Research Methodology

Analysis involving the *Analytical Network Process* (ANP) approach is the approach used to analyze this research. ANP analysis is a development of AHP (*Analytical Hierarchy Process*) which is able to improve the weaknesses of AHP in the form of the ability to accommodate the interrelationships between criteria or alternatives. There are two types of linkages or connections to choose an alternative for developing the Blue Economy with the pentahelix approach in Sulamu District, namely the linkage of the main criteria consisting of social aspects, economic aspects and environmental aspects and the linkage of the main sub criteria consisting of the role of government, role of the community, role of the private sector , the role of academics, and the role of the media (pentahelix), which are compiled based on the results of an analysis of literature and observations. The data for this study were obtained from 8 informants consisting of subdistrict heads (1 person), economic division (1 person), head of fisheries division of OPD (2 people), Bappeda (1 person), Head of Pariti Village (1 person), Head of Sulamu Village (1 person). people), and society (1 person).

1. Decomposition of Problems (Decomposition of Problems into Hierarchical Structures)

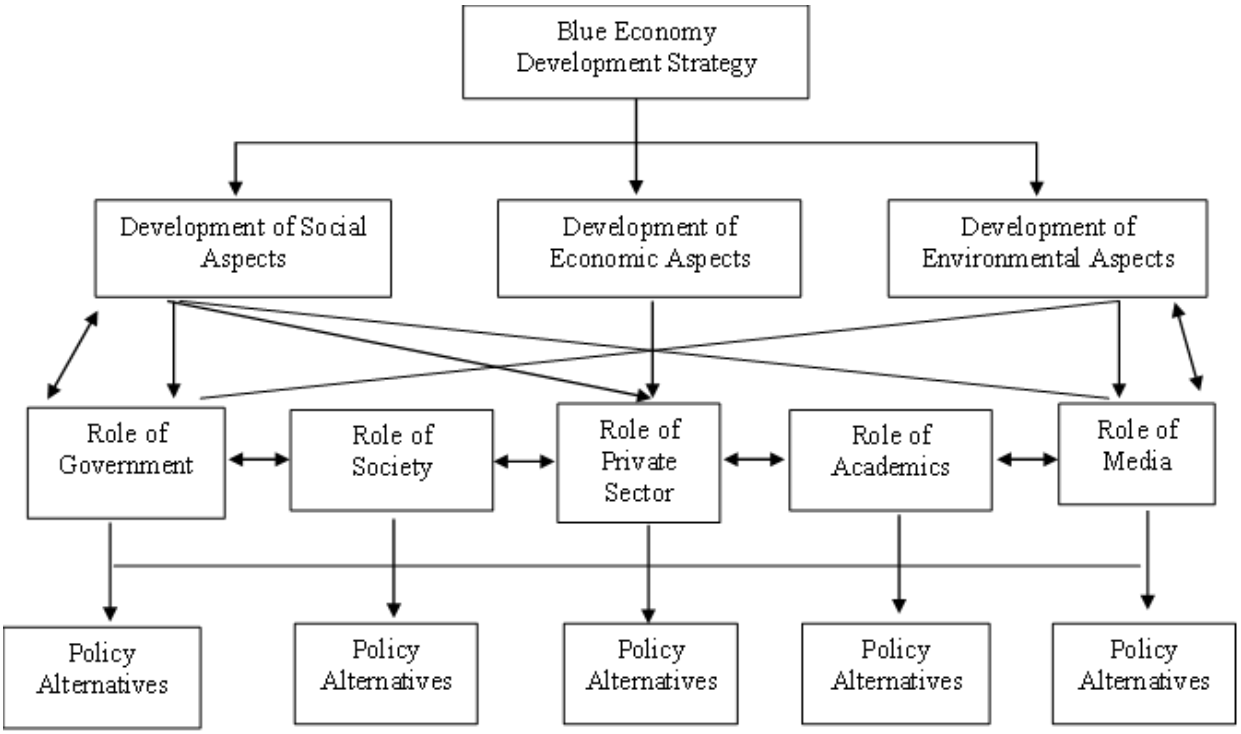


Figure 1 Development hierarchical structureBlue Economy with the Pentahelix Approach

Source: Data Processed by Researchers

2. Rating or weighting to compare elements

Respondents' assessment of the ANP questionnaire was carried out by giving an assessment from a scale of 1 to 9 that had been developed by Thomas L. Saaty, with an explanation as in Table 1.

Table 1 Scale Paired Comparison

Scale	Meaning	Description
1	Both elements are equally important *(equal importance).*	The two elements being compared make the same contribution to achieving the goal.
3	One element is slightly more important than the other elements *(moderate importance)*	Experience and judgment favor one element a little more than another.
5	One element is more important than the other elements *(essential/strong importance)*	Experience and judgment are stronger in liking an element than other elements.
7	One element is more important than the other elements *(very strong importance)*	An element is highly preferred over the other elements, its dominance is evident in the actual situation
9	One element is absolutely more important than the other elements *(extreme importance)*	An element absolutely stronger preferred than all others and is at the highest level.
2,4,6,8	Is a compromise number between the above assessments	If a compromise is needed between two considerations or judgments..

Source: L. Saaty

3. Compilation of the Matrix

The values obtained are then arranged into a paired matrix.

Table 2 Matrix

Criteria/ Alternative	Policy Alternatives 1	Policy Alternatives..	Policy Alternatives 9
Policy Alternatives 1		.../...	.../...
Policy Alternatives..	.../...		.../...
Policy Alternatives 9	.../...	.../...	

Source: Researcher's illustration

The number of cells that must be filled is n(n-1)/2 because the reciprocal matrix of diagonal elements has a value of = 1, so it doesn't need to be filled in. So that only the white part is filled.

4. Logical Consistency

Consistency calculations for each matrix are carried out through an *iteration* (matrix multiplication). Determining the level of consistency of the perception assessment is used to calculate the Consistency Index,if the resulting respondent's preference value is ≤ 0.01 then the assessment will be considered consistent and vice versa. If the assessment is inconsistent, then the consistency ratio will be measured,*which*must be 10% or less so that it can be assumed that the consistency of respondents in giving relatively valid perceptions is valid. With the following equation:

λ max = (eigenvalue 1 x number of column 1) + (eigenvalue 2 x number of column 2)..... n (1)

$$CI = \frac{\lambda\, maksimum - n}{n-1} \quad (2)$$

Description:

CI = Consistency Index

λ max = The largest Eigenvalue of the n order matri

$$CR = \frac{CI}{RI} \quad (3)$$

Description:

CI = Index Value

RI = RI value used according to the matrix order

RI values can be seen in Table 3.

Table 3 Ratio Index

N	1	2	3	4	5	6	7	8	9	10
RI	0	0	0,58	0,9	1,12	1,24	1,32	1,41	1,45	1,49

Source: L. Saaty

5. Forming Super Matrix

After assessment ANP is consistent, the next step is the preparation of *unwighted* supermatrix, *weighted* supermatrix, and *limiting* supermatrix. The way to get *the limiting* supermatrix is to do matrix multiplication until the result of the difference between the matrices is below 0.05.

Discussions

Gross Regional Domestic Product (GRDP)

Added value from the economic activities of Kupang Regency has increased, with increasing rates varying from year to year. In 2019, the estimated value of ADHB GRDP reached 7.71 trillion rupiahs, while in 2015 it was worth 5.46 trillion rupiahs or has grown 41.03% with an average growth rate during the 2015-2019 period of 8.21%. Real GRDP (ADKH) is estimated to be worth IDR 4.83 trillion in 2019, an increase of 21.74% from 2015. The average growth during the 2015-2019 period was 4.35% and tends to be more stable than ADHB GRDP growth. Price changes at the producer level which is illustrated by changes in the implicit index in general in the direction of Nominal GRDP growth.This illustrates that there is a quite significant price effect in the formation of GRDP SDHB values.The description of ADHB GRDP and ADHK GRDP of Kupang Regency for the 2015-2019 period is clearly illustrated in the following table.

Table 4 Value and Contribution of ADHB GRDP of Kupang Regency in 2015-2029

	Kategori	Tahun 2015		Tahun 2016		Tahun 2017		Tahun 2018		Tahun 2019	
		Rp.	%	Rp.	%	Rp.	%	Rp.	%	Rp.	%
A	Pertanian, Kehutanan dan Perikanan	2,355,888.9	43.09	2,532,643.6	42.07	2,799,409.8	42.49	3,057,943.5	42.81	3,267,894.18	42.38
B	Pertambangan dan Penggalian	102,909.2	1.88	110,603.7	1.84	117,232.6	1.78	129,372.7	1.81	141,126.48	1.83
C	Industri Pengolahan	101,411.2	1.85	115,023.1	1.91	122,446.9	1.86	135,309.3	1.89	146,953.66	1.91
D	Pengadaan Listrik dan Gas	1,155.9	0.02	1,636.2	0.03	1,829.7	0.03	2,045.0	0.03	2,056.67	0.03
E	Pengadaan Air, Pengolahan Sampah, Limbah dan Daur Ulang	1,959.4	0.04	2,027.6	0.03	2,096.3	0.03	2,086.9	0.03	2,022.61	0.03
F	Konstruksi	660,675.7	12.08	725,595.6	12.05	758,089.9	11.51	836,579.1	11.71	964,732.26	12.51
G	Perdagangan Besar dan Eceran; Reparasi Mobil dan Sepeda Motor	686,073.2	12.55	771,808.4	12.82	887,653.4	13.47	946,208.6	13.25	1,024,811.36	13.29
H	Transportasi dan Pergudangan	291,491.8	5.33	323,997.3	5.38	355,075.2	5.39	384,567.3	5.38	406,489.76	5.27
I	Penyediaan Akomodasi dan Makan Minum	9,035.9	0.17	10,940.7	0.18	12,336.5	0.19	13,264.8	0.19	13,934.51	0.18
J	Infomasi dan Komunikasi	231,745.7	4.24	258,271.2	4.29	272,805.0	4.14	290,085.3	4.06	306,789.41	3.98
K	Jasa Keuangan dan Asuransi	34,160.0	0.62	39,940.1	0.66	43,964.6	0.67	46,791.0	0.65	48,909.15	0.63
L	Real Estate	81,784.4	1.50	95,910.9	1.59	108,858.1	1.65	110,716.7	1.55	107,607.19	1.40
M,N	Jasa Perusahaan	2,187.4	0.04	2,466.9	0.04	2,775.9	0.04	2,951.7	0.04	3,201.83	0.04
O	Administrasi Pemerintahan, Pertahanan dan Jaminan Sosial Wajib	649,927.6	11.89	730,595.3	12.13	773,711.5	11.74	830,401.2	11.62	885,222.86	11.48
P	Jasa Pendidikan	206,201.6	3.77	239,589.0	3.98	262,833.8	3.99	281,835.8	3.95	308,923.08	4.01
Q	Jasa Kesehatan dan Kegiatan Sosial	42,086.5	0.77	49,798.1	0.83	56,517.1	0.86	61,757.2	0.86	66,966.20	0.87
R,S, T, U	Jasa Lainnya	8,704.8	0.16	9,854.0	0.16	10,774.9	0.16	11,819.4	0.17	12,802.51	0.17
	PDRB	5,467,399.2	100	6,020,701.7	100.00	6,588,411.2	100	7,143,735.5	100	7,710,443.72	100

Sumber : BPS Kabupaten Kupang, Tahun 2016 s/d Tahun 2020

Table 5 Value and Contribution of ADHK of Kupang Regency in 2015-2019

	Kategori	Tahun 2015		Tahun 2016		Tahun 2017		Tahun 2018		Tahun 2019	
		Rp.	%	Rp.	%	Rp.	%	Rp.	%	Rp.	%
A	Pertanian, Kehutanan dan Perikanan	2,355,888.9	43.09	2,532,643.6	42.07	2,799,409.8	42.49	3,057,943.5	42.81	3,267,894.18	42.38
B	Pertambangan dan Penggalian	102,909.2	1.88	110,603.7	1.84	117,232.6	1.78	129,372.7	1.81	141,126.48	1.83
C	Industri Pengolahan	101,411.2	1.85	115,023.1	1.91	122,446.9	1.86	135,309.3	1.89	146,953.66	1.91
D	Pengadaan Listrik dan Gas	1,155.9	0.02	1,636.2	0.03	1,829.7	0.03	2,045.0	0.03	2,056.67	0.03
E	Pengadaan Air, Pengolahan Sampah, Limbah dan Daur Ulang	1,959.4	0.04	2,027.6	0.03	2,096.3	0.03	2,086.9	0.03	2,022.61	0.03
F	Konstruksi	660,675.7	12.08	725,595.6	12.05	758,089.9	11.51	836,579.1	11.71	964,732.26	12.51
G	Perdagangan Besar dan Eceran; Reparasi Mobil dan Sepeda Motor	686,073.2	12.55	771,808.4	12.82	887,653.4	13.47	946,208.6	13.25	1,024,811.36	13.29
H	Transportasi dan Pergudangan	291,491.8	5.33	323,997.3	5.38	355,075.2	5.39	384,567.3	5.38	406,489.76	5.27
I	Penyediaan Akomodasi dan Makan Minum	9,035.9	0.17	10,940.7	0.18	12,336.5	0.19	13,264.8	0.19	13,934.51	0.18
J	Infomasi dan Komunikasi	231,745.7	4.24	258,271.2	4.29	272,805.0	4.14	290,085.3	4.06	306,789.41	3.98
K	Jasa Keuangan dan Asuransi	34,160.0	0.62	39,940.1	0.66	43,964.6	0.67	46,791.0	0.65	48,909.15	0.63
L	Real Estate	81,784.4	1.50	95,910.9	1.59	108,858.1	1.65	110,716.7	1.55	107,607.19	1.40
M,N	Jasa Perusahaan	2,187.4	0.04	2,466.9	0.04	2,775.9	0.04	2,951.7	0.04	3,201.83	0.04
O	Administrasi Pemerintahan, Pertahanan dan Jaminan Sosial Wajib	649,927.6	11.89	730,595.3	12.13	773,711.5	11.74	830,401.2	11.62	885,222.86	11.48
P	Jasa Pendidikan	206,201.6	3.77	239,589.0	3.98	262,833.8	3.99	281,835.8	3.95	308,923.08	4.01
Q	Jasa Kesehatan dan Kegiatan Sosial	42,086.5	0.77	49,798.1	0.83	56,517.1	0.86	61,757.2	0.86	66,966.20	0.87
R,S, T, U	Jasa Lainnya	8,704.8	0.16	9,854.0	0.16	10,774.9	0.16	11,819.4	0.17	12,802.51	0.17
	PDRB	5,467,399.2	100	6,020,701.7	100.00	6,588,411.2	100	7,143,735.5	100	7,710,443.72	100

Sumber : BPS Kabupaten Kupang, Tahun 2016 s/d Tahun 2020

Based on the data in Table 5, category A added value still dominates the GRDP/economy structure of Kupang Regencyconsistently the trend has decreased from 41.95% in 2015 to 39.29% in 2019. On the contrary, the contribution of most of the Hope has increased, especially in the F and G categories which have continued to increase during the 2015-2019 period. In 2015, the contribution of category F was 13.72% and category G was 14.70%.

In addition to these three categories, the contribution that is still quite significant to the formation of economic added value for Kupang Regency is from government administration activities (category O) which is around 10.10%, followed by category H around 6.05%, category J around 5.03% and category P in the range of 3.37%. Meanwhile, other categories that are included in the business fields in Kupang Regency contribute less than 2%. In terms of measuring the development trend of ADHB GRDP and ADHK GRDP that occurred in Kupang Regency during the 2015-2019 period, it was found that each category experienced development, with an average development of ADHB GRDP reaching 0.12% between 2015 compared to 2014 and beyond an increase also occurred in 2016 compared to 2015 of 0.09%. In ADHK GRDP, developments that occur every year are in a static range of 0.05%. PDRB development data from 2015 to 2019 in Kupang Regency is presented in the table below.

Table 6 Development of PDRB ADHB / ADHK Kupang Regency in 2015-2019

Kategori		Tahun 2015		Tahun 2016		Tahun 2017		Tahun 2018		Tahun 2019	
		Hb	Hk	Hb	Hk	Hb	Hk	Hb	Hk	Hb	Hk
		%	%	%	%	%	%	%	%	%	%
A	Pertanian, Kehutanan dan Perikanan	10.73	3.42	7.50	1.26	10.53	4.74	9.24	3.84	6.87	3.53
B	Pertambangan dan Penggalian	10.13	4.49	7.48	4.84	5.99	0.26	10.36	16.03	9.09	8.48
C	Industri Pengolahan	11.05	5.97	13.42	5.86	6.45	4.01	10.50	4.81	8.61	3.99
D	Pengadaan Listrik dan Gas	26.02	16.40	41.55	19.00	11.83	0.76	11.77	8.32	0.57	0.48
E	Pengadaan Air, Pengolahan Sampah, Limbah dan Daur Ulang	6.79	4.36	3.48	2.67	3.39	3.11	-0.45	-0.60	-3.08	-1.11
F	Konstruksi	9.32	6.70	9.83	7.20	4.48	4.37	10.35	6.90	15.32	11.00
G	Perdagangan Besar dan Eceran; Reparasi Mobil dan Sepeda Motor	11.79	8.10	12.50	7.18	15.01	8.96	6.60	5.78	8.31	6.97
H	Transportasi dan Pergudangan	9.86	6.72	11.15	9.61	9.59	6.82	8.31	5.79	5.70	3.41
I	Penyediaan Akomodasi dan Makan Minum	22.55	13.38	21.08	10.32	12.76	5.05	7.52	6.32	5.05	3.73
J	Infomasi dan Komunikasi	8.35	4.44	11.45	8.05	5.63	4.26	6.33	4.47	5.76	4.07
K	Jasa Keuangan dan Asuransi	12.46	6.26	16.92	10.58	10.08	3.55	6.43	3.68	4.53	2.75
L	Real Estate	15.25	7.40	17.27	9.10	13.50	6.27	1.71	3.54	-2.81	-0.02
M,N	Jasa Perusahaan	15.22	9.45	12.78	9.12	12.53	8.59	6.33	4.26	8.47	5.60
O	Administrasi Pemerintahan, Pertahanan dan Jaminan Sosial Wajib	15.97	5.38	12.41	6.83	5.90	3.55	7.33	5.21	6.60	3.83
P	Jasa Pendidikan	12.79	2.55	16.19	6.54	9.70	3.50	7.23	3.02	9.61	3.77
Q	Jasa Kesehatan dan Kegiatan Sosial	14.23	6.29	18.32	10.43	13.49	5.73	9.27	6.94	8.43	6.10
R,S, T, U	Jasa Lainnya	11.37	7.61	13.20	7.77	9.35	4.09	9.69	7.32	8.32	5.86
	PDRB	**11.33**	**5.05**	**10.12**	**4.83**	**9.43**	**5.13**	**8.43**	**5.06**	**7.93**	**5.14**

Sumber : BPS Kabupaten Kupang, Tahun 2014 s/d Tahun 2019

Economic Growth

Economic Growth Kupang Regency's economic growth during the 2015-2019 period was quite stable at around 5%. The peak of growth during that period occurred in 2019 (5.14%). In the previous year 2018 there was a slowdown of up to 5.06% due to the prolonged dry season that year, which affected the overall agricultural output which was the prima donna of Kupang Regency. By category, the lowest growth rate in the last five years was experienced by category E with an average of -1.11% while the highest was experienced by category F with an average of 11%.

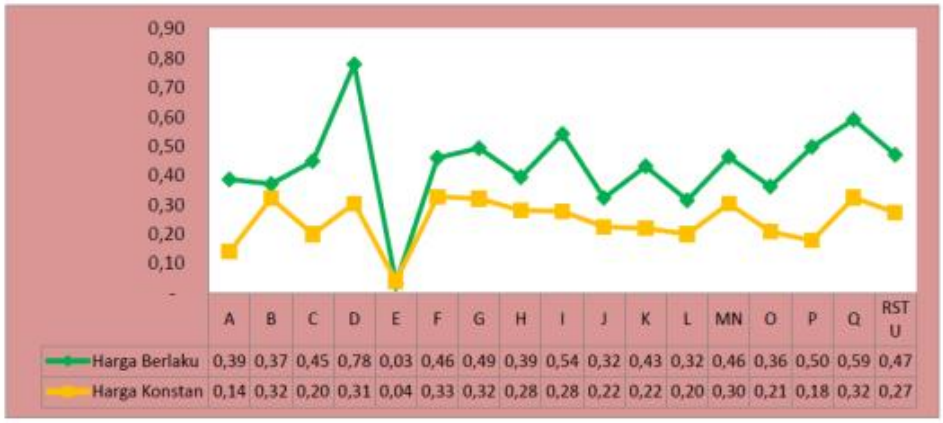
Table 7 Economic Growth in Kab. Kupang According to disaggregated categories, 2015-2019

Kategori		Tahun 2015	Tahun 2016	Tahun 2017	Tahun 2018	Tahun 2019
A	Pertanian, Kehutanan dan Perikanan	3.42	1.26	4.74	3.84	3.53
B	Pertambangan dan Penggalian	4.49	4.84	0.26	16.03	8.48
C	Industri Pengolahan	5.97	5.86	4.01	4.81	3.99
D	Pengadaan Listrik dan Gas	16.40	19.00	0.76	8.32	0.48
E	Pengadaan Air, Pengolahan Sampah, Limbah dan Daur Ulang	4.36	2.67	3.11	-0.60	-1.11
F	Konstruksi	6.70	7.20	4.37	6.90	11.00
G	Perdagangan Besar dan Eceran; Reparasi Mobil dan Sepeda Motor	8.10	7.18	8.96	5.78	6.97
H	Transportasi dan Pergudangan	6.72	9.61	6.82	5.79	3.41
I	Penyediaan Akomodasi dan Makan Minum	13.38	10.32	5.05	6.32	3.73
J	Infomasi dan Komunikasi	4.44	8.05	4.26	4.47	4.07
K	Jasa Keuangan dan Asuransi	6.26	10.58	3.55	3.68	2.75
L	Real Estate	7.40	9.10	6.27	3.54	-0.02
M,N	Jasa Perusahaan	9.45	9.12	8.59	4.26	5.60
O	Administrasi Pemerintahan, Pertahanan dan Jaminan Sosial Wajib	5.38	6.83	3.55	5.21	3.83
P	Jasa Pendidikan	2.55	6.54	3.50	3.02	3.77
Q	Jasa Kesehatan dan Kegiatan Sosial	6.29	10.43	5.73	6.94	6.10
R,S, T, U	Jasa Lainnya	7.61	7.77	4.09	7.32	5.86
Pertumbuhan Ekonomi		**5.05**	**4.83**	**5.13**	**5.06**	**5.14**

Sumber : BPS Kabupaten Kupang, Tahun 2016 s/d Tahun 2020

Categories B, G, Q, MN, O, and P which dominate the formation of the total GRDP value in Kupang Regency are also the main contributors to the total rate of economic growth. The highest source of economic growth in 2019 came from category A (Agriculture, Forestry and Fisheries) namely 3.35%, followed by category C (Wholesale and Retail Trade, Car and Motorcycle Repair) namely 3.99%. Category J contributed 4.07%, while the RSTU category contributed 5.86%. Likewise the combined remaining categories of 0.28%.

Of the seventeen economic sectors in Kupang Regency, all of them are experiencing growth which tends to experience a downward trend compared to previous years. In general, the agricultural sector as a regional leading sector has experienced a decline in support for economic growth every year.



	A	B	C	D	E	F	G	H	I	J	K	L	MN	O	P	Q	RST U
Harga Berlaku	0,39	0,37	0,45	0,78	0,03	0,46	0,49	0,39	0,54	0,32	0,43	0,32	0,46	0,36	0,50	0,59	0,47
Harga Konstan	0,14	0,32	0,20	0,31	0,04	0,33	0,32	0,28	0,28	0,22	0,22	0,20	0,30	0,21	0,18	0,32	0,27

Sumber : BPS Kabupaten Kupang, Tahun 2016-2020 (Olahan)

Figure 2 GRDP Growth of Kupang Regency, 2015-2019

Referring to the Kupang district GRDP growth data for 2015-2019 and some of the descriptions above, the achievements of Kupang Regency's economic growth are always above the economic growth of East Nusa Tenggara and National, still leaving a number of problems namely

1. Economic growth has not been followed by an increase in employment as indicated by the relatively high unemployment rate.
2. Economic growth has not stimulated the distribution of income between regions in the 24 existing sub-districts.
3. Kupang Regency's high economic growth is mainly supported by the category of business fields, non-tradable (sectors that do not absorb a lot of labor) and the elasticity of economic growth which absorbs a lower workforce.
4. Kupang Regency's economic growth has not been able to contribute to the problem of poverty alleviation.

Per Capita GRDP

The increase in Per Capita GRDP value from year to year is in line with the increase in nominal GRDP value. This is due to population development which does not show significant changes. In 2015, the value reached 15.71 million rupiahs and continued to increase to 16.64 million rupiahs in 2019. Even though the Kupang Regency's GRDP value is the third highest out of 22 regencies/cities in NTT, Kupang Regency's GDP per capita is in seventh position due to its relatively low population. quite high and is the third highest area by population in NTT. The total per capita GRDP value during the 2013-2017 period with an average of 17.74 million rupiahs shows an increase every year. However, if you look at per capita growth, what has happened is that there has been a decrease in the growth rate that has occurred since 2016 of 6.39% compared to 2015 which reached 8.81%. The decline in growth continued in 2018 which only reached 5.75% and 4.31% in 2019.

Table 8 Per Capita GRDP and Per Capita Growth Rate, 2015-2019

Tolak Ukur	Tahun 2015	Tahun 2016	Tahun 2017	Tahun 2018	Tahun 2019
PDRB HB (Rp)	5,467,399.20	6,020,701.70	6,588,411.20	7,143,735.50	7,710,443.72
Jumlah Penduduk (Jiwa)	348,010	360,228	372,777	387,479	413,582
PDRB Perkapita (Juta Rp.)	15.71	16.71	17.67	18.44	18.64
Laju Pertumbuhan (%)	8.81	6.39	5.75	4.31	1.12

Sumber : BPS Kabupaten Kupang, Tahun 2016 s/dTahun 2020

The inconsistent growth in Kupang Regency's per capita income from 2015 to 2019 was caused by a decrease in the percentage of economic growth in real sectors such as agriculture and trade. The agricultural sector with the first largest absorption of labor in Kupang Regency, experienced growth that tended to decline. If in 2015 the percentage of economic growth in the agricultural sector was in the range of 41.95 percent, the percentage of economic growth decreased sequentially by 0.0015 percent until 2019 which was in the range of 39.29 percent. For the trade sector, although at the end of 2017 its growth experienced a rapid increase compared to the last two years, the decline in the percentage of growth from 2018 to 2019 directly affected the overall growth in per capita income, considering that the trade sector is the sector that absorbs the third largest workforce. in Kupang Regency.

Sumber : BPS Kabupaten Kupang, Tahun 2016-2020 (Olahan)

Figure 3 Economic Growth of Kupang Regency Agriculture and Trade Sector, 2015-2019

Consumption Expenditure and Gini Index

In communities with low-income groups, spending on food consumption tends to be higher than non-food. Conversely, the higher the income, the portion of spending on food consumption tends to decrease and then switch to non-food consumption. This is caused by a person's limited ability to consume food, while non-food is limited.

In 2019, the average per capita expenditure for the population of Kupang Regency was IDR 648,552, or an increase of 21.86% from 2015. Until 2019, food consumption in Kupang Regency was higher than non-food. Consistently the portion of food consumption to the total value of consumption has increased. In 2015, the portion of food consumption was recorded at 55.54% and continued to increase to 57.81% in 2019. Meanwhile, non-food consumption continued to increase even though in 2016 it decreased to IDR 227,337.

Table 9 Population Expenditure by Type of Expenditure, 2015-2019

Kelompok Barang		Nilai (Rupiah)				
		Tahun 2015	Tahun 2016	Tahun 2017	Tahun 2018	Tahun 2019
A.	Makanan	295,596	271,502	382,565	332,548	374,900
1	Padi-Padian	115,752	107,092	113,158	90,383	109,867
2	Umbi-Umbian	1,654	1,104	3,360	2,093	995
3	Ikan	20,247	19,399	25,688	22,984	27,448
4	Daging	14,748	12,937	25,728	16,473	17,509
5	Telur dan susu	12,460	9,496	13,805	10,758	13,301
6	Sayur-Sayuran	25,384	24,041	40,209	31,364	36,017
7	Kacang-Kacangan	4,241	3,555	7,461	5,014	5,542
8	Buah-buahan	8,010	7,417	10,110	7,335	6,903
9	Minyak dan Lemak	10,724	8,802	9,473	8,892	9,458
10	Bahan Minuman	16,768	14,743	16,109	13,990	17,740
11	Bumbu-bumbuan	4,788	4,224	5,529	4,793	4,883
12	Konsumsi lainnya	4,419	3,793	5,253	3,958	4,328
13	Makanan dan Minuman Jadi	35,695	34,570	74,081	83,767	83,323
14	Tembakau dan Sirih	20,706	20,329	32,601	30,744	37,586
B.	Bukan Makanan	236,622	222,737	293,809	254,321	273,652
1	Perumahan, Bahan Bakar, Penerangan dan Air	132,121	117,415	130,824	136,284	147,225
2	Aneka Barang dan Jasa	52,014	55,632	65,866	58,218	62,517
	-biaya pendidikan	12,893	20,043	22,815	22,815	22,815
	- biaya kesehatan	7,260	8,153	9,312	22,815	22,815
	- barang dan jasa lainnya	31,861	27,435	33,739	33,739	33,739
3	Pakaian, Alas Kaki dan Penutup Kepala	13,626	9,555	13,049	13,491	14,385
4	Barang Tahan Lama	23,835	28,561	48,409	21,035	28,022
5	Pajak Pemakaian dan Premi Asuransi	4,839	4,663	24,980	20,010	19,387
6	Pesta dan Upacara	10,187	6,911	10,681	5,283	2,116
Total Pengeluaran		532,218	494,239	676,374	586,869	648,552

Sumber : BPS Kabupaten Kupang, Tahun 2016 s/dTahun 2020

Per capita expenditure in 2019 from existing households was dominated by the Rp. 300,000 – Rp. 499,999 expenditure group, namely 27.58% with a total of 25,351 households. This condition illustrates a decrease of 20.84% of households from the condition in 2016 which was originally 30,635. Whereas those that have experienced an increase from 2016 to 2019, occurred in the expenditure group above IDR 500,000 – IDR 1,000,000.

Table 10 Monthly Per Capita Expenditure Groups, 2016-2019

Kelompok Pengeluaran Perkapita Sebulan (Rupiah)	Pengeluaran/Rumah Tangga							
	Tahun 2016		Tahun 2017		Tahun 2018		Tahun 2019	
	Rumah Tangga	%	Rumah Tangga	%	Rumah Tangga	%	Rumah Tangga	%
100000 - 149999	246	0.30	105	0.12	141	0.16	165	0.18
150000 - 199999	3,430	4.18	428	0.50	371	0.42	414	0.45
200000 - 299999	16,077	19.59	10056	11.84	10,749	12.18	12,142	13.21
300000 - 499999	30,635	37.33	24532	28.89	24,190	27.41	25,351	27.58
500000 - 749999	17,915	21.83	17910	21.09	18,762	21.26	19,413	21.12
750000 - 999999	7,599	9.26	16212	19.09	17,897	20.28	17,593	19.14
>1000000	6,155	7.50	15660	18.44	16,141	18.29	16,840	18.32
Total	82,057	100	84,902	100	88,251	100	91,919	100

Sumber : BPS Kabupaten Kupang, Tahun 2017 s/dTahun 2020

Meanwhile, to measure the level of income inequality, the population can be measured using the Gini Index and World Bank criteria by calculating the percentage of expenditures that can be spent by the 40% of the population with the lowest income. In 2019, the Gini Index was recorded at 0.2 and the 40%

of the population with the lowest income was 20%. This shows that inequality in Kupang Regency is in the low category.

Table 11 Distribution of Expenditure Per Capita and Gini Index, 2016-2019

Indikator	Distrubusi Pengeluaran dan Indeks Per Tahun			
	2016	2017	2018	2019
40% Terendah	21.86	17.64	18.49	22.96
40% Menengah	36.44	31.97	35.65	44.64
20% Tertinggi	2.92	3.31	3.96	4.46
Indeks Gini	0.3	0.2	0.2	0.2

Sumber : BPS Kabupaten Kupang, Tahun 2017 s/dTahun 2020

Poverty

To measure poverty, each region applies the concept of economic development so that all people are able to meet their basic needs (basic needs approach). With this approach, poverty experienced by the community is seen as an economic inability to meet basic food and non-food needs as measured from the expenditure side. This approach is also used as the basis for determining the definition of poor people as residents who have an average per capita expenditure (per month) below the poverty line.

The number of poor people in Kupang Regency in 2019 was 92,013 people or 22.03% of the total population in 2019. This data shows an increase in the number of poor people from 2018 as many as 3,348 people or 3.78% from 2017 of 6,610 people or 7.74% from 7,612 people in 2016 and 10,683 people in 2015. The average increase in the number of poor people during 2015-2019 was 2,671 people/year. Kupang Regency poverty indicators from 2015-2019 can be seen in the following table.

Table 12 Poverty Indicators for Kupang Regency for 2015-2019

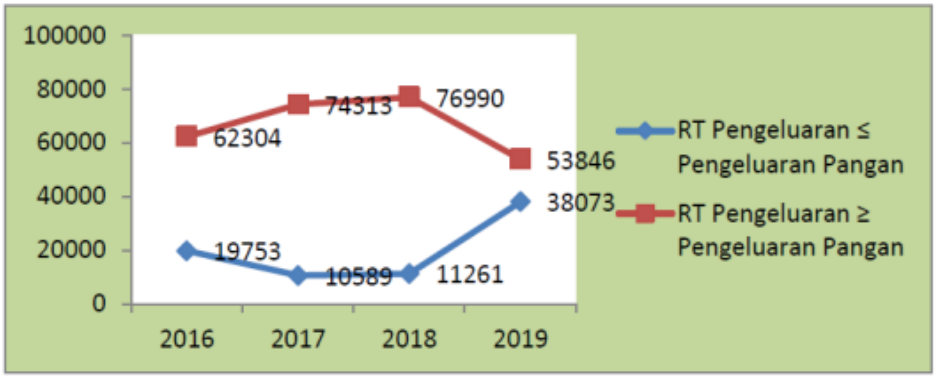
Uraian		Tahun				
		2015	2016	2017	2018	2019
01.	Jumlah Penduduk Miskin (Jiwa)	81,330	84,401	85,403	88,665	92,013
02.	Persentase Penduduk Miskin (%)	23.37	23.43	22.91	23.10	23.03
03.	Garis Kemiskinan (Rp/Kapita/Bulan)	282,496	309,208	325,677	336,984	356,462
04.	Indeks Kedalaman Kemiskinan/P1	5.02	3.67	4.85	3.55	4.48
05.	Indeks Keparahan Kemiskinan/P2	1.5	0.8	1.3	0.9	1.3

Sumber : BPS Kabupaten Kupang, Tahun 2016 s/d Tahun 2020

Based on poverty indicator data, the poverty line in Kupang Regency has continued to grow every year since 2015-2019. The most significant poverty line growth occurred in 2016 which reached IDR 26,712. Furthermore, sequential growth slowdown occurs every year reaching IDR 18,492.

The data shows that the poverty depth index in Kupang Regency is in the lowest range, namely 3.55 in 2018 and the highest in 2015 of 5.02. The magnitude of this poverty depth index directly indicates that the average per capita expenditure tends to move away from the poverty line and the gap in expenditure of the poor is also widening. The same thing also applies to the poverty severity index value which is in the range of 0.8 in 2016, experiencing a drastic increase of 1.3 in 2019. The fluctuation in the poverty severity index value informs that there are still incidents of poverty among the poor which result in the creation of the poverty gap between the poor and other population groups. Other information indicates that there is still a gap in spending among the poor population.

Data for 2019 shows that 41 percent of households in Kupang Regency are only able to spend their total expenditure on food needs, and less than 59 percent of households are able to spend their expenditure on non-food needs.



Sumber : BPS Kabupaten Kupang, Tahun 2017-2020 (Olahan)

Figure 4 Household Expenditure Levels in Kupang Regency, 2016-201**9**

Farmer Exchange Rates

One of the indicators/tools used to assess the level of farmer welfare is the Farmer's Exchange Rate (NTP). In-depth knowledge of the behavior of farmers' exchange rates, the impact of development and identification of the determinants of exchange rates will be very useful for planning development policies, improving future development programs. In line with that, a study was carried out on NTP as material in formulating policies to improve farmers' welfare.

One indicator of a reduction in per capita income for people in Kupang Regency, where the majority work in the agricultural sector (above 60 percent) is the Farmer's Exchange Rate (NTP), which remains around 105 percent. This means that during the last five years, from 2015 to 2019 the agricultural sector has not been able to drive an increase in per capita income in Kupang Regency.

Table 13 Subsector Farmers Exchange Rates in Kupang Regency, 2015-2019

Sub Sektor	NTP/Tahun				
	2015	2016	2017	2018	2019
1. Tanaman Padi-Palawija					
a. Indeks yang Diterima	106.50	106.51	106.84	108.15	108.23
b. Indeks yang Dibayar	106.06	105.30	105.96	105.80	102.67
c. Nilai Tukar Petani	**100.28**	**101.29**	**101.64**	**103.82**	**106.99**
2. Hortikultura					
a. Indeks yang Diterima	103.70	102.85	102.18	102.49	102.57
b. Indeks yang Dibayar	101.51	101.41	101.07	101.91	101.78
c. Nilai Tukar Petani	**103.17**	**101.74**	**101.09**	**101.27**	**101.44**
3. Tanaman Perkebunan Rakyat (TPR)					
a. Indeks yang Diterima	103.18	103.04	103.37	103.68	103.76
b. Indeks yang Dibayar	100.91	100.71	100.37	100.21	100.08
c. Nilai Tukar Petani	**102.88**	**102.52**	**103.00**	**103.02**	**103.19**
4. Peternakan					
a. Indeks yang Diterima	101.77	103.11	102.44	102.75	101.83
b. Indeks yang Dibayar	100.78	100.55	100.21	101.05	100.92
c. Nilai Tukar Petani	**100.20**	**102.98**	**102.37**	**101.59**	**100.77**
5. Perikanan					
a. Indeks yang Diterima	102.00	103.35	103.68	102.49	102.55
b. Indeks yang Dibayar	101.77	101.44	101.26	101.24	101.19
c. Nilai Tukar Petani	**100.51**	**102.60**	**102.83**	**101.51**	**101.60**
5.1 Penangkapan Ikan					
a. Indeks yang Diterima	103.25	101.49	104.82	104.13	104.21
5.2 Budidaya Perikanan					
a. Indeks yang Diterima	100.74	101.20	102.53	101.85	102.88
b. Indeks yang Dibayar	102.15	102.74	122.73	102.84	101.87
c. Nilai Tukar Petani	**98.85**	**97.12**	**98.21**	**98.38**	**98.38**
Kabupaten Kupang					
a. Indeks yang Diterima	101.63	102.37	104.70	104.91	102.99
b. Indeks yang Dibayar	99.41	101.08	103.77	101.64	101.53
c. Nilai Tukar Petani	**102.41**	**101.83**	**102.15**	**103.24**	**101.40**

Sumber : Bank Indonesia, Tahun 2016, 2017 dan 2018

Sumber : BPS Kabupaten Kupang, Tahun 2016-2020 (Olahan)

Figure 5 FTT Kupang Regency, 2015-2019

Problems in the marine and fisheries sector, namely:

1. The community's fish consumption has not been evenly distributed as a result of most of the fishery production being sold to the City of Kupang.
2. The low fisherman exchange rate is due to the scarcity of special fuel for fishermen.
3. Low salt production compared to the total potential land for developing salt production
4. The government's efforts to facilitate seaweed export activities have not been optimal.

Pairwise Comparison

Tables 14 and 15 present a pairwise comparison assessment of the main criteria and main sub-criteria in the development of the Blue Economy in Sulamu District.

Table 14 Pairwise Comparison Main Criteria

Main Criteria	Social Aspect	Economic Aspect	Environmental aspects
Social Aspect	1	1,313	2,277
Economic Aspect	0,756	1	3,409
Environmental aspects	0,435	0,291	1
Number of Columns	2,191	2,604	6,686

Table 15 Pairwise Comparison of Main Sub Criteria

Main Sub Criteria	Government Role	Community Role	Private Role	The Role of Academics	Media Role
Government Role	1	0,868	3,633	2,787	2,615
Community Role	1,144	1	2,787	3	2,615
Private Role	0,274	0,356	1	1,147	0,869
The Role of Academics	0,356	0,330	0,871	1	1,1,47
Media Role	0,379	0,379	1,146	0,871	1
Number of Columns	3,153	2,934	9,437	8,805	8,247

Eigenvector Value and Consistency Ratio

Table 16 displays the eigenvector of the main criteria obtained by adding up the values of each column of the pairwise comparison matrix then dividing each column cell value by the total column and adding up the values of each row and dividing by n.

Table 16 Normalization of Main Criteria Matrix

	Social Aspect	Economic Aspect	Environmental aspects	Number of lines	Weight (Eigenvector)
Social Aspect	0,456	0,504	0,341	1,301	0,434
Economic Aspect	0,345	0,384	0,510	1,239	0,413
Environmental aspects	0,199	0,112	0,150	0,460	0,153
Number of Columns	1	1	1	3	1

Stepscalculate λ max by using equation 1.

λ max = (0.950 x 2.191) + (1.075 x 2.604) + (1.025 x 6.686)

= 3.051

n is the number of ordered matrices used, namely three criteria. Next is calculating CI with equation 2.

= (3.051-3)/(3-1)

= 0.051/2

= 0.025

RI = 0.58 is used, which is the value that has been determined in table 3 because it uses a matrix of order 3. The following calculates the CR value with equation 3.

= 0.025/0.58

= 0.044

Because the result of CR 0.044 is smaller than 0.10 (CR <0.1) then the eigenvector is considered consistent.

Table 17 displays the eigenvector of the main criteria obtained by adding up the values of each column of the pairwise comparison matrix then dividing each column cell value by the total column and adding up the values of each row and dividing by n.

Table 17 Normalization of Main Criteria Matrix

	Government Role	Community Role	Private Role	The Role of Academics	Media Role	Number of lines	Weight (Eigenvector)
Government Role	0,317	0,296	0,385	0,317	0,317	1,632	0,326
Community Role	0,363	0,341	0,295	0,341	0,317	1,657	0,331
Private Role	0,087	0,121	0,106	0,130	0,105	0,550	0,110
The Role of Academics	0,113	0,112	0,092	0,114	0,139	0,570	0,114
Media Role	0,120	0,129	0,121	0,099	0,121	0,591	0,118
Number of lines	1	1	1	1	1	5	1

The next step is to calculate λ max using the equation 1.

Max = (1,029 x 3,153) + (0.972 x 2.934) + (1.038 x 9.437) + (1.004 x 8.805) + (0.975 x 8.247)

= 5.018

n is the number of ordered matrices used, namely five criteria. Next is calculating CI with equation 2.

= (5.018-5)/(5-1)

= 0.018/4

= 0.005

RI = 1.12 is used, which is the value that has been determined in table 3 because it uses a matrix of order 5. The following calculates the CR value with equation 3.

= 0.005/1.12

= 0.004

Because the result of CR 0.004 is smaller than 0.10 (CR <0.1) then the eigenvector is considered consistent.

Supermatrix

1. Unweight Matrix

Tables 18 and 19 show the unweight matrix of the main criteria and main sub criteria which are the initial matrices that do not have weights.

Table 18 Unweight Matrix Main Criteria

Main Criteria	Social Aspect	Economic Aspect	Environmental aspects
Social Aspect	1	1,313	2,277
Economic Aspect	0,756	1	3,409
Environmental aspects	0,435	0,291	1

Table 19 Unweight Matrix Main Sub Criteria

Main Sub Criteria	Government Role	Community Role	Private Role	The Role of Academics	Media Role
Government Role	1	0,868	3,633	2,787	2,615
Community Role	1,144	1	2,787	3	2,615
Private Role	0,274	0,356	1	1,147	0,869
The Role of Academics	0,356	0,330	0,871	1	1,1,47
Media Role	0,379	0,379	1,146	0,871	1

2. Weight Matrix

Tables 20 and 21 show*weight* the main criteria matrix and the main sub criteria obtained by multiplying the main criteria matrix and the main sub criteria with the matrix itself.

Table 20 Weight Main Criteria Matrix

Main Criteria	Social Aspect	Economic Aspect	Environmental aspects	Amount	Weight
Social Aspect	2,983	3,289	9,030	15,302	0,43661
Economic Aspect	2,995	2,985	8,539	14,519	0,41428
Environmental aspects	1,090	1,1,53	2,983	5,226	0,14911
			Amount	35,046	1

Table 21 Weight Main Sub Criteria Matrix

Main Sub Criteria	Government Role	Community Role	Private Role	The Role of Academics	Media Role	Amount	Weight
Government Role	4,971	4,942	15,110	14,625	13,858	53,506	0,3273
Community Role	5,110	4,967	15,341	14,664	14,088	54,171	0,3314
Private Role	1,692	1,658	4,981	4,882	4,701	17,915	0,1096
The Role of Academics	1,763	1,714	5,269	4,980	4,845	18,571	0,1136
Media Role	1,815	1,783	5,483	5,249	4,977	19,308	0,1181
					Total	163,471	1

3.Limit Matrix

Tables 22 and 23 display the limit matrix of the main criteria and main sub criteria obtained by multiplying *weight* the main criteria matrix and the main sub criteria with the matrix itself. This matrix is said to be the limit because of the difference in weight between *weight* matrix with the product of the matrix multiplication *weight* alone is less than 0.05 (<0.05).

Table 22 Main Criteria Matrix Limits

Main Criteria	Social Aspect	Economic Aspect	Environmental aspects	Amount	Weight
Social Aspect	28,591	30,039	81,953	140,582	0,43473
Economic Aspect	27,181	28,604	78	133,786	0,41372
Environmental aspects	9,956	10,466	28,585	49,007	0,15155
			Total	323,375	1

Table 23 Main Criteria Sub Criteria Limits

Main Sub Criteria	Government Role	Community Role	Private Role	The Role of Academics	Media Role	Amount	Weight
Government Role	126,476	123,933	379,244	364,516	349,392	994,170	0,32695
Community Role	128,176	125,608	384,358	369,457	354,102	1007,599	0,33136
Private Role	42,456	41,604	127,321	122,372	117,284	333,753	0,10976
The Role of Academics	44,014	43,133	131,986	126,874	121,595	346,006	0,11379
Media Role	45,702	44,785	137,040	131,726	126,257	359,253	0,11815
					Total	3040,781	1

Table 24 Main Criteria Supermatrix Eigenvector Difference

	Weight	Limit Weight	Difference
Social Aspect	0,43661	0,43473	0,00188
Economic Aspect	0,41428	0,41372	0,00056
Environmental aspects	0,14911	0,15155	-0,00244

Difference *eigenvector* the main criterion supermatrix is below 0.05 (<0.05), meaning that this matrix is already limited and feasible to use. Based on difference*eigenvector* in the supermatrix, it is known that the main criteria that are the priority for the development of the Blue Economy in Sulamu District, sequentially are environmental aspects, social aspects, and economic aspects.

Note: the minus sign is ignored.

Table 25 Difference Eigenvector Supermatrix Main sub criteria

	Weight	Limit Weight	Difference
Government Role	0,3273	0,32695	0,000369
Community Role	0,3314	0,33136	0,000016
Private Role	0,1096	0,10976	-0,000169
The Role of Academics	0,1136	0,11379	-0,000183
Media Role	0,1181	0,11815	-0,000033

Difference*eigenvector* the main sub-criteria supermatrix is below 0.05 (<0.05), meaning that this matrix is already limited and feasible to use. Based on difference*eigenvector* in the supermatrix, it is known that the main sub-criteria that are prioritized for the development of the Blue Economy in Sulamu District, sequentially are the role of the government, the role of academics, the role of society, the role of the media, and the role of the private sector.

From the alternative policies, it shows the main priority, namely the fisheries sector with the potential for the fisheries sector, both capture fisheries and coastal cultivation which are quite large, but are still experiencing obstacles, namely the not yet optimal level of production and productivity of capture fisheries and coastal aquaculture businesses, limited capital for the procurement of facilities and infrastructure fishery business, undeveloped business institutional system, minimal control of fishing infrastructure and facilities at the community level, minimal capital and control of fish and coastal aquaculture, underdeveloped production support institutional system, low community participation in maintenance of coastal cultivation supporting buildings. Research conducted by Ramadhanan and Hakim shows that there is a need for synergy between*stakeholder* in developing*blue economy* through the establishment of pro-marine and fisheries monetary and fiscal policies, increasing ecological preservation for the sustainability of natural resources, increasing performance and development as well as investment in the real sector (Ramadhan & Hakim, 2019). While research conducted by Radiarta et al shows that in developing blue economy-based aquaculture, it is necessary to have prospective fishery technology available, to increase human resources (HR), to socialize the concept*blue economy*, and the application of aquaculture that is able to accommodate the principles of the blue economy (Radiarta et al., 2015).

Cooperation between the government, academia, the private sector, the media and the public is needed through social, environmental and economic aspects, to commit to developing the potential for the process of economic, social and environmental transformation at the regional and community levels in order to achieve equitable distribution of economic growth, balanced development between regions and environmental sustainability and utilization of natural resources. After identifying the economic sectors, it

is necessary to have a development strategy through the utilization of marine resources that are environmentally sound to support economic growth, welfare and livelihoods as well as the preservation of marine ecosystems. Fishermen are the main target in implementing the blue economy concept. Management*supply chain* Marine resources become insights and knowledge that they need to understand in order to maintain the benefits of marine ecosystems. In addition, an ideal institutional design needs to be built to coordinate blue economy sectors through the development of a National Fish Logistics system program that aims to meet the needs of fish consumption and the fish processing industry from upstream to downstream. Comprehensively, this system is expected to create a system capable of responding to challenges and problems in handling fish supply, production, distribution and consumption.

Increasing business cooperation through partnerships, collaboration between large or medium-sized businesses and small businesses specifically aims to develop a science and technology-based regional economy. Developing an area economy based on large pelagic capture fisheries technology consists of input variables consisting of regional potential (HR, SDA), the role of the environment, socio-culture, economic business, facilities and infrastructure, as well as developing an ecotourism-based mangrove area economy that can be done through development upstream downstream integrated fishery business system based on cultural commodities.

Develop export-oriented aquaculture with superior commodities including shrimp, lobster, crab and seaweed; and development of aquaculture villages in accordance with local wisdom to alleviate poverty while protecting high economic value commodities from extinction with a blue economy strategy, including increasing the scope and effectiveness of marine protected areas by establishing restrictive zones and empowering local communities, as well as reducing the amount of marine debris; arrangement of sea space utilization for the protection of coastal and marine ecosystems and control of development activities in coastal areas and small islands; quota-based measurable fishing by maintaining the sustainability of fish resources, increasing economic growth in the region, and increasing the welfare of fishermen; as well as maintaining the carrying capacity of the environment with sustainable and environmentally friendly cultivation to improve people's welfare.

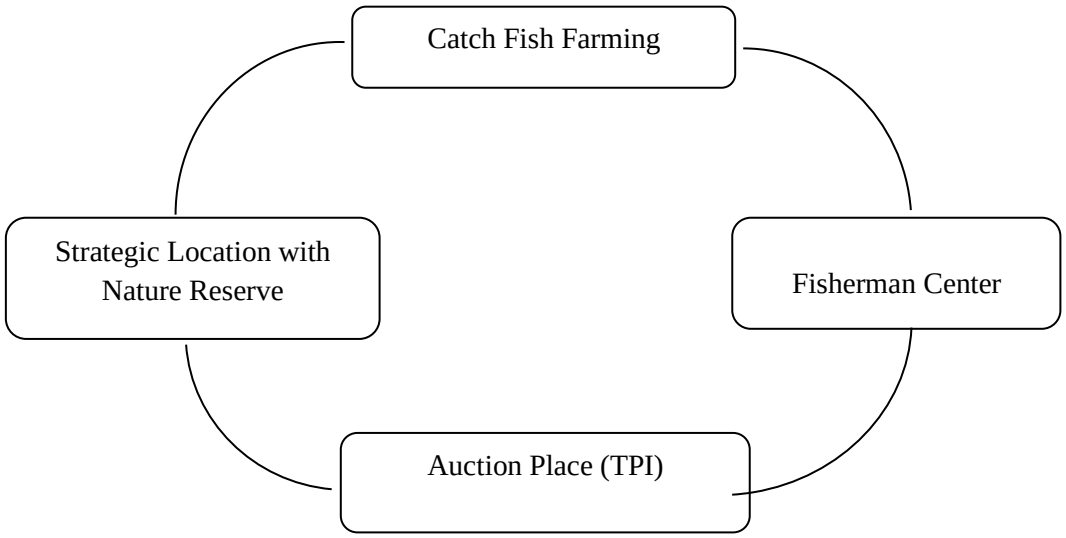


Figure 5 Development ConceptBlue Economy

Conclusion

Based on testing and analysis of the development of blue economic zones using the pentahelix approach using the ANP method, it can be concluded that the priority factors in developing *Blue economy* in Sulamu District are environmental aspects (0.00244), social aspects (0.00188), and economic aspects (0.00056). While in supporting this development, the priority role of pentahelix sequentially is the role of the government (0.000369), the role of academia (0.000183), the role of the private sector (0.000169), the role of the media (0.000033), and the role of society (0, 000016).

Some of the Blue Economy development strategies with the pentahelix approach that can serve as input for the Kupang regency government are:

1. Development of the National Fish Logistics system program which aims to meet the needs of fish consumption and the fish processing industry from upstream to downstream. Comprehensively, this system is expected to create a system capable of responding to challenges and problems in handling fish supply, production, distribution and consumption.
2. Increasing business cooperation through partnerships, collaboration between large or medium-sized businesses and small businesses specifically aims to develop a science and technology-based regional economy.
3. Developing a technology-based regional economy based on large pelagic capture fisheries consists of input variables consisting of regional potential (HR, SDA), the role of the environment, socio-culture, economic business, facilities and infrastructure, as well as developing an ecotourism-based mangrove area economy that can be done through development upstream downstream integrated fishery business system based on cultural commodities.
4. Develop export-oriented aquaculture with superior commodities including shrimp, lobster, crab and seaweed; and development of aquaculture villages in accordance with local wisdom to alleviate poverty while protecting high economic value commodities from extinction with a blue economy strategy, including increasing the scope and effectiveness of marine protected areas by establishing restrictive zones and empowering local communities, as well as reducing the amount of marine debris; arrangement of sea space utilization for the protection of coastal and marine ecosystems and control of development activities in coastal areas and small islands; quota-based measurable fishing by maintaining the sustainability of fish resources, increasing economic growth in the region, and increasing the welfare of fishermen; as well as maintaining the carrying capacity of the environment with sustainable and environmentally friendly cultivation to improve people's welfare.

References

Barda Nawawi Arief, (2010), *Masalah Penegakan Hukum dan Kebijakan Hukum Pidana dalam* Arsyad, S. (2009). *Konservasi tanah dan air*. PT Penerbit IPB Press.

Daryanto, A. (2010). Minapolitan: Strategi Peningkatan Daya Saing Perikanan Berbasis Klaster. *Majalah Trobos Edisi Februari*.

Indonesia, R. (2020). Rencana pembangunan jangka menengah nasional 2020-2024.

Radiarta, I. N., Erlania, E., & Haryadi, J. (2015). ANALISIS PENGEMBANGAN PERIKANAN BUDIDAYA BERBASIS EKONOMI BIRU DENGAN PENDEKATAN ANALYTIC HIERARCHY PROCESS (AHP) Analysis Of Aquaculture Development Based On Blue Economy Concept Using Analytical Hierarchy Process (AHP) Approach. *Jurnal Sosek KP*, *10*(1), 47–59. http://www.

Ramadhan, I., & Hakim, M. F. (2019). Journal Blue Economy daerah Pesisir Berbasis Kelautan dan Perikanan. *Economics Development Analysis Journal*, *2*(2), 8.

Rencana Pembangunan Jangka Panjang Nasional Indonesia (RPJPN) (2005-2025).

RPJMD Kabupaten Kupang Tahun (2019-2024).

RTRW Kab. Kupang tahun (2014-2034).

S.Smith-Godfrey. (2012) Defining the Blue Economy, 2.

Saaty, T.L. and Vargas L.G. (2006). Decision Making with The Analytic Network Process: Opportunities, Cost and Risk. RWS Publications. Pittsburg. USA.

Sapto. (2008). Aplikasi Analytic Network Process pada Perancangan Sistem Pengukuran Kinerjadengan Menggunakan Metode Balanced Scorecard. Jurnal Teknik Industri, Vol 9, No. 2.

Sukirno, Sadono. (2013). *Makroekonomi, Teori Pengantar, (Edisi Ketiga).* Jakarta: PT Rajagrafindo Persada.

Suswono. (2010). Strategi Peningkatan Daya Saing Organisasi Logistik Pangan Nasional yang Berkelanjutan: Studi Kasus BULOG. Thesis. Manajemen dan Bisnis Institut Pertanian Bogor.

Tarigan, Robinson. (2004). *Ekonomi Regional, (Edisi Revisi).* Jakarta: PT Bumi Aksara.

Copyrights