Regional Spatial Plan Analysis North Halmahera Regency

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This research aims to analyze the Regional Spatial Plan (RTRW) of North Halmahera Regency, focusing on aspects of planning, implementation, and impact on regional development. This research uses descriptive qualitative methodology to understand and describe phenomena related to the spatial plan of North Halmahera Regency. The research was conducted in North Halmahera Regency, with a focus on some specific areas. Research subjects included local government officials, local community representatives, academics and spatial planning experts. The research object was the North Halmahera District spatial plan document, related policies, and empirical data on implementation and impact. Data collection techniques were conducted through several techniques, namely in-depth interviews, field observations, and documentation. The data that has been collected is analyzed using qualitative methods. The stages of analysis include data reduction, data display and conclusion drawing. The results of the research show that North Halmahera Regency has great potential in various sectors that can be developed to improve regional welfare and economy.

Keywords: Regional Spatial Plan, North Halmahera Regency.

1. Introduction

The Regional Spatial Plan (RTRW) is an important instrument in planning for sustainable regional development (Kultsum, 2023). The Regional Spatial Plan serves as a guideline for the government, local governments, investors and the community in regulating the use of space in the region, with the aim of creating harmony between the natural environment, the artificial environment, and the interests of society (Chen & Xu, 2022). North Halmahera Regency, located in North Maluku Province, is one of the regions that requires effective spatial planning given its abundant natural resource potential and the development challenges it faces.

North Halmahera Regency has unique geographical and ecological features that make it an area with great potential in the agriculture, fisheries and tourism sectors (Kadir & Kes, 2022). However, this potential is also accompanied by significant challenges such as vulnerability to natural disasters, land use conflicts, and pressure on biodiversity (Mondal & Palit, 2022). Therefore, the preparation of a Regional Spatial Plan (RTRW) in North Halmahera Regency is crucial to ensure that development is sustainable and equitable for all communities.

A comprehensive and participatory approach in the preparation of the Regional Spatial Plan (RTRW) of North Halmahera Regency is needed. This includes the involvement of various stakeholders, including the government, private sector and local communities, in order to create spatial policies that are inclusive and responsive to the needs and aspirations of local communities. In addition, the integration of environmental, social and economic aspects in spatial planning is expected to minimize the negative impacts of development and maximize the benefits for community welfare (Semeraro et al., 2021).

Law No. 26/2007 on Spatial Planning has mandated that the Regional Spatial Plan (RTRW) can be reviewed to adjust the substance of the plan to the existing conditions of regional development and new regulations related to spatial planning (Murjani & Saparuddin, 2021).

As is known, that the enactment of PP No.13 of 2017 concerning Amendments to Government Regulation No.28 of 2008 concerning the National Spatial Plan (RTRWN), due to the many dynamics of regional developments that occur such as the expansion of provinces, districts and cities; the existence of gaps between regions that are high enough to need rearrangement; as well as the dynamics of changes in the direction of development in the 2015-2019 National Medium-Term Development Plan (RPJMN), the President's Priority Agenda (Nawacita) which includes the direction of the maritime state which became the 2015-2019 working cabinet program (Parameswaran, 2020).

The preparation and implementation of the Regional Spatial Plan (RTRW) in North Halmahera Regency is not only important for long-term development planning, but also for maintaining a balance between economic development, social welfare, and environmental sustainability (Syukur et al., 2022). A good and effective Regional Spatial Plan (RTRW) can be a strong foundation for sustainable and prosperous regional development.

This research aims to assess the potential, problems and opportunities of various aspects related to the preparation and implementation of the North Halmahera District RTRW. Thus, it is expected to make a positive contribution to better spatial planning in North Halmahera Regency

2. Methodology

This research used descriptive qualitative methods to understand and describe phenomena related to the spatial plan of North Halmahera Regency Utara (Hennink et al., 2020; Fadillah et al., 2024). This method allows researchers to interpret data in depth and contextually. The research was conducted in North Halmahera Regency, with a focus on some areas that have significant specificities. Qualitative methods emphasize the observation of phenomena and examine the substance of the meaning of these phenomena. Basri (2014) concluded that the

focus of qualitative research is on the process and the meaning of the results. Qualitative research attention is more focused on efforts to understand an event, behavior, or phenomenon (Mohamed, Abdul Majid & Ahmad, 2010). The research subjects included local government officials, local community representatives, academics and spatial planning experts. The object of the research is the North Halmahera Regency spatial plan document, related policies, and empirical data on implementation and impact (Byrd, 2020). Data collection techniques were conducted through several techniques. First, in-depth interviews were conducted with government officials, community representatives, sector experts and spatial planning experts to obtain in-depth views on the spatial plan. Second, field observation techniques, direct observation in the field to see the implementation of the regional spatial plan and the real conditions in the area. Then third, documentation techniques, collecting and analyzing official documents related to regional spatial plans, such as local regulations, spatial maps, and annual reports on regional development (Silverman & Patterson, 2021). The data that has been collected is analyzed using several qualitative analysis techniques. The stages of analysis include data reduction, data display and conclusion drawing (Timmermans & Tavory, 2022).

3. Result and Discussion

Result

Physical and Environmental Support Analysis

Land capability analysis is an analysis to determine the potential of land for the use of various agricultural systems in a broad and sustainable manner, based on the most appropriate use and treatment, so that land utilization can be guaranteed in an unlimited time, so that the growth and development of a plant can be optimal and sustainable, it requires supportive land, namely land that has good capabilities, with physical and chemical properties suitable for plant needs (Monteiro & Santos, 2022). The results of the analysis of land capability are as follows:

Table 1. Results of Land Capability Analysis

Class I	Class I soils have almost no significant constraints that limit their utilization, making them suitable for all kinds of intensive agricultural activities. This class is characterized by flat soils, very little erosion hazard, deep solums, generally well-drained, easy to cultivate, can hold water well and are responsive to fertilization. Fertilization and soil structure maintenance measures are required to maintain fertility and productivity.
Class II	Class II soils have few constraints that can reduce their use options or require moderate preservation measures. Soils in land class II require careful management including preservation, avoiding damage and improving air-water relations in the soil if the soil is farmed. Constraints in this class may be one or a combination of the following factors: gentle slopes, moderate sensitivity to erosion, slightly poor soil structure. In use light preservation measures such as contour tillage, strip cropping, crop rotation with cover crops or green manure, mounding, fertilization and liming are required. The combination of measures required varies from place to place, depending on soil properties, climate and farming system.
Class III	Class III soils have more constraints than Class II soils, and when used for crops require special preservation measures, which are generally more difficult to implement and maintain.

	Constraints on class III soils can be one or more of the following factors: slightly sloping slopes, or very sensitive to erosion hazards, poorly drained, very slow permeability of the sub soil, shallow solum that limits rooting area, low water holding capacity, low fertility and not easily improved. If this land is cultivated, it requires special preservation measures such as improved drainage, planting systems such as planting in lanes or rotation with cover crops, terrace construction, in addition to measures to maintain or improve soil fertility such as the addition of organic matter, fertilizers and so on.
Class IV	Soils in class IV land have greater constraints than class III so that the selection of types of use or types of plants is also more limited. Class IV soils can be used for a variety of agricultural uses with greater threat and danger of damage than Class III soils. Class IV soils have one or more of the following limiting factors: steep slopes, highly sensitive to erosion hazards, shallow solum, low water holding capacity, and poor drainage.
Class V	Class V soils are not suitable for growing annual crops, but are more suitable for growing permanent vegetation such as fodder crops or forestation. Class V soils are located on nearly flat, wet or waterlogged areas or have too many stones on the ground.
Class VI	Soils in land class VI are not suitable for cultivation of annual crops, but are suitable for permanent vegetation that can be used as fodder crops / pasture or forested.These soils have steep slopes, so they are easily eroded or have experienced very heavy erosion, or have very shallow soil solums.
Class VII	Soils in land class VII are not suitable for cultivation of annual crops, and should be used for planting with permanent vegetation such as grasslands or forests accompanied by appropriate management measures that are more intensive than those required on land class VI. Soils in land class VI are located on very steep or heavily eroded slopes, or the soils are very shallow, or rocky.
Class VIII	Class VIII soils are not suitable for annual crops and other agricultural production and should be left in a natural state under natural vegetation. Class VIII soils can be used for nature reserves, protected forests or recreation. Class VIII soils are very steeply sloping or very rocky land surfaces which can be loose rock or rock outcrops or sandy soils (on the coast).

Source: Compilation Team Analysis, 2018

Based on the results of the land capability analysis, it can be identified that there is still quite a lot of land that can be used for agricultural or plantation cultivation activities, especially in areas with land capability classes I - IV, which are mostly scattered in each sub-district.

Population Analysis

Population is a major factor in planning, so knowledge of population activities and development is a key part of plan-making. Population analysis is the main factor to determine the characteristics of the development of an area, so that past population data until the last year is indispensable in projecting future conditions (Hohenlohe et al., 2021). One of the important things in population analysis is knowing the number of residents in the future. The results of the analysis of population are as follows:

Table 2: Population projection and sex ratio by subdistrict in North Halmahera Utara District

No.	District	Residents			Sex Ratio	Total Population				
		Male	Female	Total		2017	2018	2022	2027	2032
(1)	(2)	(4)	(5)	(6)	(10)	(11)	(12)	(16)	(21)	(24)
1	Galela	4,454	4,336	8,790	103	8,790	9,361	12,043	16,500	22,606
2	West Galela	5,678	5,395	11,073	105	11,073	11,793	15,171	20,786	28,478
3	South Galela	5,041	4,960	10,001	102	10,001	10,651	13,702	18,773	25,721
4	North Galela	5,132	4,612	9,744	111	9,744	10,377	13,350	18,291	25,060
5	Kao	4,784	4,452	9,236	107	9,236	9,836	12,654	17,337	23,754
6	Kao West	5,001	4,501	9,502	111	9,502	10,120	13,019	17,837	24,438
7	Kao Bay	3,274	3,149	6,423	104	6,423	6,840	8,800	12,057	16,519
8	North Kao	6,773	6,336	13,109	107	13,109	13,961	17,960	24,607	33,714
9	Loloda Islands	4,260	3,972	8,232	107	8,232	8,767	11,279	15,453	21,171
10	Loloda North	5,013	4,602	9,615	109	9,615	10,240	13,173	18,049	24,728
11	Malifut	6,158	6,016	12,174	102	12,174	12,965	16,679	22,852	31,310
12	Tobelo	16,524	16,144	32,668	102	32,668	34,791	44,758	61,322	84,017
13	West Tobelo	3,161	2,917	6,078	108	6,078	6,473	8,327	11,409	15,632
14	Tobelo South	7,381	7,170	14,551	103	14,551	15,497	19,936	27,314	37,423
15	Tobelo Tengah	8,148	7,879	16,027	103	16,027	17,069	21,958	30,085	41,219
16	Tobelo Timur	3,477	3,260	6,737	107	6,737	7,175	9,230	12,646	17,326
17	Tobelo Utara	6,122	6,197	12,319	99	12,319	13,120	16,878	23,124	31,683
Total		100,381	95,898	196,279	105	196,279	209,037	268,919	368,443	504,798

Source: Compilation Team Analysis, 2018

Analysis of population data for North Halmahera district shows that there are slightly more males than females, with a sex ratio of approximately 104.67. The implications of this distribution must be taken into account in development planning, public service provision and socio-economic development strategies. Policies that are responsive to gender differences can help create a more balanced and sustainable society.

Economic Analysis

a. Klassen Typology Analysis

The Klassen method is used to determine the grouping of economic sectors in North

Halmahera Utara Regency according to their growth structure, the Klassen Matrix can be carried out four sector groupings by utilizing the growth rate and contribution of the GRDP sector of North Maluku Province and North Halmahera Utara Regency in 2013 – 2016 (Putri, 2023). The results of the Klassen Typology calculation for North Halmahera Utara Regency are presented in the table below.

Table 3. Calculation Results of Klassen Typology of North Halmahera Regency Economy 2013 - 2016

No	Lapangan Usaha	LPE (%/th)		Kontribusi (%)		Tipologi Klassen	Kuadran
		K Kep Sula	P Malut	K Kep Sula	P Malut		
1	Pertanian, Kehutanan, Perikanan	3.45	2.98	23.37	23.89	Potensial	III
2	Pertambangan dan Penggalian	3.58	-2.99	30.48	10.78	Maju	I
3	Industri Pengolahan	5.94	9.65	4.24	5.55	Terbelakang	IV
4	Pengadaan Listrik & Gas	23.08	25.11	0.07	0.09	Terbelakang	IV
5	Pengadaan Air, Pengeloaan Sampah, Limbah & Daur Ulang	11.47	8.59	0.09	0.09	Maju	I
6	Konstruksi	10.59	8.07	5.47	6.46	Maju	I
7	Perdagangan Besar & Eceran; Reparasi Mobil & Sepeda Motor	10.05	9.20	12.14	17.34	Terbelakang	IV
8	Transportasi & Pergudangan	9.70	8.61	2.01	5.58	Potensial	III
9	Penyediaan Akomodasi & Makan Minum	7.81	8.65	0.26	0.44	Terbelakang	IV
10	Informasi & Komunikasi	8.17	9.99	2.97	4.23	Terbelakang	IV
11	Jasa Keuangan & Asuransi	8.69	9.27	1.41	2.97	Terbelakang	IV
12	Real Estate	7.54	7.43	0.06	0.12	Potensial	III
13	Jasa Perusahaan	6.44	6.43	0.11	0.34	Potensial	III
14	Administrasi Pemerintahaan, Pertahanan dan JamSos Wajib	7.19	6.94	12.38	15.77	Potensial	III
15	Jasa Pendidikan	6.32	6.57	2.86	3.42	Terbelakang	IV
16	Jasa Kesehatan dan Kegiatan Sosial	7.09	7.27	1.66	2.12	Terbelakang	IV
17	Jasa Lainnya	7.69	8.33	0.41	0.82	Terbelakang	IV

Source: North Halmahera Regency in Figures 2017, BPS.

North Maluku Province in Figures 2017, BPS.

Based on the results of the Klassen Typology Calculation, it is known that there are three sectors that occupy a developed position, namely the mining and quarrying sector, the water supply sector, waste management, waste and recycling and the construction sector.

b. LQ Analysis

LQ analysis is to find out which sectors in a region are superior and which sectors are not superior by comparing a region with its upper level regions in a certain period of time (Kano et al., 2020). The results of the LQ analysis in North Halmahera Utara Regency in 2013 - 2016 are shown in the table below.

Table 4. Results of LQ Analysis of North Halmahera Regency 2013 - 2016

No.	Lapangan Usaha	LQ		Rata-rata LQ	Peringkat
		2013	2016		
1	Pertanian, Kehutanan, Perikanan	0.97	0.99	0.98	non basis
2	Pertambangan dan Penggalian	2.58	3.15	2.86	1
3	Industri Pengolahan	0.81	0.73	0.77	non basis
4	Pengadaan Listrik & Gas	0.82	0.78	0.80	non basis
5	Pengadaan Air, Pengeloaan Sampah, Limbah & Daur Ulang	0.97	1.05	1.01	2
6	Konstruksi	0.82	0.88	0.85	non basis
7	Perdagangan Besar & Eceran; Reparasi Mobil & Sepeda Motor	0.69	0.71	0.70	non basis
8	Transportasi & Pergudangan	0.35	0.37	0.36	non basis
9	Penyediaan Akomodasi & Makan Minum	0.59	0.58	0.59	non basis
10	Informasi & Komunikasi	0.72	0.69	0.70	non basis
11	Jasa Keuangan & Asuransi	0.48	0.47	0.47	non basis
12	Real Estate	0.54	0.55	0.54	non basis
13	Jasa Perusahaan	0.34	0.34	0.34	non basis
14	Administrasi Pemerintahaan, Pertahanan dan Jaminan Sosial Wa	0.78	0.79	0.79	non basis
15	Jasa Pendidikan	0.84	0.83	0.84	non basis
16	Jasa Kesehatan dan Kegiatan Sosial	0.79	0.78	0.78	non basis
17	Jasa Lainnya	0.51	0.50	0.50	non basis

Source: North Halmahera Regency in Figures 2017, BPS.

North Maluku Province in Figures 2017, BPS.

Based on the LQ results, it is known that there are only two sectors that occupy a basic position, namely the mining and quarrying sector with an average LQ value of 2.86 and the water supply, waste management, waste and recycling sector with an average LQ value of 1.01.

c. Analysis Shift- Share (SS)

Meanwhile, SS analysis is used to analyze and determine the shift and role of the economy in the region. The method is used to observe the structure of the economy and its shifts by emphasizing the growth of the sector in the region, which is compared with the same sector at a higher regional level (Živković & Kostić, 2023). The results of SS analysis in North Halmahera Utara Regency in 2013 - 2016 are shown in the table below.

Table 5. Results of SS Analysis of North Halmahera Utara District 2013 - 2016

No.	Lapangan Usaha	Growth / Shift Share (G)	Province Share (N)	Proportional Shift (P)	Defferential Shift (D)
1	Pertanian, Kehutanan, Perikanan	75,774.74	125,753.36	(62,789.95)	12,811.33
2	Pertambangan dan Penggalian	120,568.45	163,707.97	(241,329.69)	198,190.17
3	Industri Pengolahan	21,824.73	22,032.98	16,128.28	(16,336.53)
4	Pengadaan Listrik & Gas	1,307.31	277.97	1,171.15	(141.81)
5	Pengadaan Air, Pengel Sampah, Limbah & Daur Ulang	888.40	423.93	222.45	242.03
6	Konstruksi	51,750.19	26,564.69	11,296.79	13,888.70
7	Perdag Bsr & Eceran; Reparasi Mobil & Spd Motor	109,278.14	59,427.17	38,262.40	11,588.57
8	Transportasi & Pergudangan	17,336.37	9,896.87	5,244.94	2,194.57
9	Penyediaan Akomodasi & Makan Minum	1,801.31	1,308.46	702.97	(210.11)
10	Informasi & Komunikasi	21,366.25	14,929.80	11,931.20	(5,494.75)
11	Jasa Keuangan & Asuransi	10,851.61	7,043.21	4,622.65	(814.25)
12	Real Estate	429.91	324.12	98.55	7.24
13	Jasa Perusahaan	659.31	588.19	69.09	2.02
14	Admin Pem, Pertahanan dan JamSos Wajib	79,984.79	63,178.37	13,398.64	3,407.78
15	Jasa Pendidikan	16,204.18	14,775.85	2,125.25	(696.91)
16	Jasa Kesehatan dan Kegiatan Sosial	10,536.83	8,497.20	2,333.02	(293.40)
17	Jasa Lainnya	2,806.40	2,074.65	988.00	(256.26)

Source: North Halmahera Regency in Figures 2017, BPS.

North Maluku Province in Figures 2017, BPS.

When viewed from the results of the SS analysis above, the more competitive sectors in North Halmahera Utara Regency are sectors: 1, sector 2, sector 5, sector 6, sector 7, sector 8, sector 12, sector 13, and sector 14. This means that these sectors are superior sectors and have competitiveness with the same sectors in other regions or what is known as Competitive Advantage, Specialized sectors.

Analysis Public Service Facilities

Based on data on the amount of waste generation 730.53 m3 / day, household waste 591.46 m3 and non-household waste 139.07 m3 or 49.76% comes from the kitchen, 15.82% leaves / plants, 13.27% plastic, 12.74 paper, and the rest in the form of glass, metal, textile, leather and B3 waste. The results of the analysis of public service facilities in North Halmahera Utara Regency can be shown in the table below.

Table 6: Total waste generation in North Halmahera Utara Regency in 2018

No.	Source	Unit	Generation (kg/unit/day)	Volume (liter/unit/day)	Density (kg/m)^3	Number of Units in Halut District	Waste Generation (kg/day)	Waste Generation (liter/day)	Waste generation (m3/day)	RT Waste (m3/day)	Non RT Waste (m3/day)
1	Housing	people	0.61	3.28	172.57	180,100.00	591,458.44	591,458.44	591.46	591.46	
2	RS	bed	0.16	1.60	77.60	1,265.00	2,024.00	2,024.00	2.02		2.02
3	Market	m2	4.16	18.42	240.96	2,745.00	50,561.40	50,561.40	50.56		50.56
4	School	student	0.07	0.72	82.48	41,434.00	29,889.30	29,889.30	29.89		29.89
5	Road	m	0.01	0.11	95.87	610.81	64.99	64.99	0.06		0.06
6	Shop	m2	0.04	0.85	55.07	17,143.00	14,547.89	14,547.89	14.55		14.55
7	Hotel	bed	0.13	1.08	124.01	650.00	704.96	704.96	0.70		0.70
8	Restaurant	chair	0.54	2.62	199.59	1,723.00	4,521.33	4,521.33	4.52		4.52
9	Office	employee	0.08	0.80	96.06	45,900.00	36,758.96	36,758.96	36.76		36.76
Total									730.53	591.46	139.07

Source: DLH North Halmahera 2018

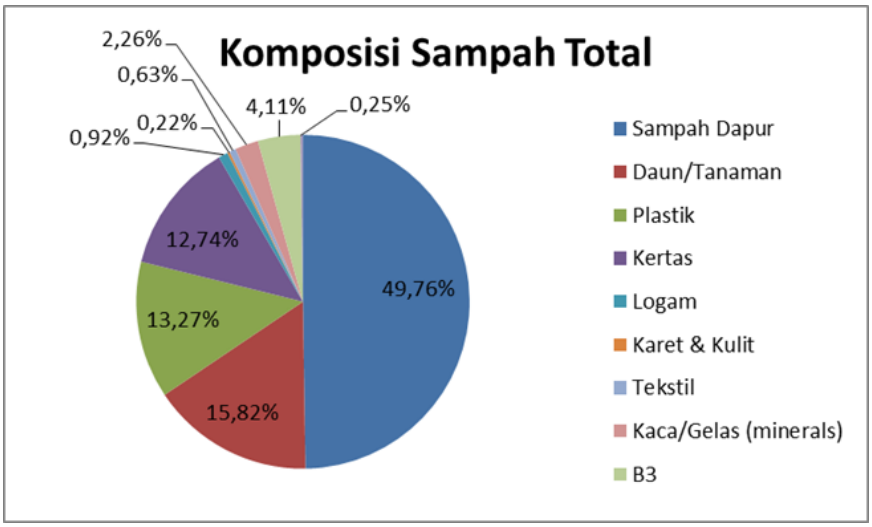

Figure 1: Composition of total waste from total waste generation in North Halmahera North District

Source: DLH North Halmahera 2018

Productive Sector Analysis

a. Fisheries

Based on the existing potential of 33,061 tons/year (pelagic fish) and 16,876 tons/year (demersal fish), with production in 2017 of 18,870.0 tons, the development opportunities are still very possible. Opportunities for the development of fisheries production in North Halmahera North District are shown in the following table.

Table 7: Leading Fishery Commodities of North Halmahera Utara Regency

No.	Products and Production/year	Location Potential	How to Input	Development Potential	Marketing
1.	Tuna (Thunnus), production 6,200 tons/year	All sub-districts	● Fishing from WPP Waters WPP 715, WPP 716 and WPP 717	● Canned fish ● Fillet ● Frozen fish ● Fresh fish	● Export ● Meet domestic/local needs
2.	Layang (Decapterus sp.), production 3,575 tons/year	All sub-districts	● Fishing from WPP Waters WPP 715, WPP 716 and WPP 717	● Canned fish ● Frozen fish ● Dried fish ● Fresh fish	● Export ● Meet domestic/local needs
3.	Skipjack (Katsuwonus Pelamis), production 2,100 tons/year	All sub-districts	● Fishing from WPP Waters WPP 715, WPP 716 and WPP 717	● Canned fish ● Fillet ● Frozen fish ● Fresh fish	● Export ● Meet domestic/local needs

No.	Products and Production/year	Location Potential	How to Input	Development Potential	Marketing
4.	Tongkol (Euthynnus affinis), Production 2,100 tons/year	All sub-districts	● Fishing from WPP Waters WPP 715, WPP 716 and WPP 717	● Canned fish ● Fillet ● Frozen fish ● Fresh fish	● Export ● Meet domestic/local needs
5.	Grouper, production 115 tons/year		● Arrest ● Cultivation ● Enlargement	● Live fish ● Fresh fish ● Frozen fish	● Export ● Meet domestic/local needs
6.	Seaweed, economic types are gracilaria and Euchema cottoni,		● Cultivation	● Pharmaceutical industry ● Food and beverage industry ● Caragenan ● Home processing industry (dodol, candy, etc.)	● Export of dried seaweed ● Export for pharmaceutical industry materials ● Export of carrageenan ● Meet domestic needs

Source: BPPDS North Halmahera Regency, 2018 and analysis

b. Tourism

Tourism analysis was carried out using the scoring method on 4 (four) main variables including: Destination, Marketing, Institutional and Industry. The measurement parameters in 3 ordinal scales are described as follows.

Table 8. Tourism Parameters of North Halmahera Utara Regency

No.	Parameters	Scale		
		Good	Medium	Less
	DESTINATION			
1	Number of Destinations	Number of destinations >20	Number of destinations >15	Number of destinations >10
2	Accessibility	>10 places can be traveled and easily reached by both land and sea routes	>5 places are accessible and easy to reach both land and sea routes	<5 places are accessible and easy to reach by land and sea
3	Amenity	Own hotel/inn	Has an inn/homestay	Having homestays/residents' houses for rent
4	Attractions	There are >15 tourist attractions (art, nature, culture)	There are >10 attractions (art, nature, culture)	There are >5 tourist attractions (art, nature, culture)
	MARKETING			
5	Branding	There is a signboard/tourist identity board		
6	Advertising	Information available on social media	Information available through print media	Information not available
7	Selling	The tourist attractions have selling points	Depends on Travel/operator	Only accepts visits
	FAMILIES			
8	Formal Education	There is a tourism school	There is a high school	There is no high school

No.	Parameters	Scale		
		Good	Medium	Less
9	Association	There is a formal association	There are informal associations	No association
	INDUSTRY			
10	Souvenirs	There are souvenir sales in the form of souvenir shops	There are only souvenir sellers	No souvenir sales
11	Culinary	There is a restaurant with a capacity of >40 seats	There is a restaurant with a capacity of >15 seats	There are food stalls

Source: Compilation Team Analysis 2018

The determination of development priorities for each destination (using the sub-district administrative area approach) was determined by assessing each destination using the measuring scale. The assessment is done by comparing the initial information obtained from the survey. The determination of parameter numbers is done by judgment.

Discussion

Land utilization for agricultural and plantation cultivation activities is an important aspect of land use planning in various regions (Long et al., 2021). capability analysis is an important basis in determining the suitability of land for these activities. In this context, the results of the land capability analysis show that there is significant potential for the development of agricultural and plantation cultivation in areas with land capability classes I - IV.

The land capability analysis shows that there is still a lot of potential land for agricultural and plantation cultivation activities in various sub-districts. With the right approach to land management and utilization, these areas can contribute significantly to food security and the welfare of local communities. Strategies that consider the characteristics of each land class will be key in optimizing the potential of agriculture and plantations in the region.

Population distribution by sex is an important factor in development planning and public service provision (Osborne, 2020). In North Halmahera Regency, analysis of population data shows that there are slightly more males than females, with a sex ratio of around 104.67. This means that there are 104.67 males for every 100 females. This ratio carries implications that must be taken into account in development planning and socio-economic development strategies in the area.

The sex ratio in North Halmahera Regency, which shows slightly more males than females, has significant implications for development planning and socio-economic development strategies. An in-depth understanding of this demographic distribution is important to guide effective public policies and development programs. With an inclusive and sustainable approach, North Halmahera Regency can capitalize on its demographic potential to achieve greater social and economic well-being.

Assessing the performance of economic sectors is an essential step in determining regional development strategies (Wu et al., 2023). Various analytical tools such as Klassen Typology, Location Quotient (LQ), and Shift-Share (SS) are used to identify sectors that have growth potential and significant contribution to the regional economy. Based on the results of this analysis, in North Halmahera Regency, the three sectors that occupy advanced positions are the mining and quarrying sector, the water supply, waste management, waste, and recycling

sector, and the construction sector.

The Klassen Typology, LQ, and Shift-Share analysis provide a clear picture of the economic sectors that have advantages and growth potential in North Halmahera Regency. The mining and quarrying, water supply and waste management, and construction sectors occupy advanced positions and are the main drivers of the regional economy. A development strategy that focuses on strengthening these sectors, supported by innovation, education and economic diversification, will help North Halmahera Regency achieve sustainable and inclusive economic growth.

Waste management is becoming an important issue in environmental management in urban and rural areas (Zorpas, 2020). Data from public service facilities in North Halmahera Regency shows waste generation of 730.53 m^3/day, with the majority of waste coming from households.

Analysis of data from public service facilities in North Halmahera district shows that waste management requires an integrated approach involving separation at source, organic waste processing, inorganic waste recycling, and special handling for hazardous waste. The implementation of strategies based on waste composition data will help to create a more effective and sustainable waste management system, improving environmental quality and public health in North Halmahera district.

The fisheries and tourism sectors are two productive sectors that have great potential to be developed in North Halmahera Regency (Wararag et al., 2021). The analysis shows that the existing fisheries potential is quite significant, but has not been fully realized. Meanwhile, the tourism sector has shown progress in terms of destination, marketing, institutional and industrial aspects, but is still not optimal.

The potential for fisheries and tourism in North Halmahera Regency is enormous but not yet fully utilized. With the right strategies, including improved technology, product diversification, effective marketing and sustainable management, these two sectors can develop more optimally and contribute significantly to the regional economy. Synergies between the fisheries and tourism sectors can also create new opportunities that support sustainability and the welfare of local communities.

4. Conclusion

In this study it can be concluded that the results of the land capability analysis, can be identified that there is still quite a lot of land that can be used for agricultural or plantation cultivation activities, especially in areas with land capability classes I - IV, which are mostly scattered in each sub-district.

Analysis of population data for North Halmahera district shows that there are slightly more males than females, with a sex ratio of approximately 104.67. The implications of this distribution should be taken into account in development planning, public service provision, and socio-economic development strategies.

Based on the economic analysis of Klassen Typology, LQ and Shift- Share (SS), it is known that there are three sectors that occupy a developed position, namely the mining and

quarrying sector, the water supply sector, waste management, waste and recycling, then the construction sector.

Data analysis of public service facilities shows that the amount of waste generation is 730.53 m3 / day, 591.46 m3 household waste and 139.07 m3 non-household waste or 49.76% comes from the kitchen, 15.82% leaves / plants, 13.27% plastic, 12.74 paper, and the rest is glass, metal, textile, leather and hazardous waste.

Analysis of the productive sector, namely fisheries, the existing potential is 33,061 tons/year (pelagic fish) and 16,876 tons/year (demersal fish), with production in 2017 of 18,870.0 tons, so development opportunities are still very possible. Tourism, destination, marketing, institutional and industrial aspects are well developed but not yet optimal.

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