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STUDY OF RECOMMENDATIONS FOR SUSTAINABLE FOOD AGRICULTURAL LAND PROTECTION IN DETERMINING REGIONAL SPATIAL PLANNING SOUTHEAST ACEH DISTRICT CASE STUDY

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Abstract

Protecting sustainable food agricultural land is an important component as a forerunner in recommendations for the demolition of space as a food crop area plan, especially in Southeast Aceh Regency which has great potential in the agricultural sector. This research aims to analyze the challenges and opportunities in integrating urban development and agricultural land conservation, as well as providing strategic recommendations in determining the Regional Spatial Planning (RTRW) in Southeast Aceh Regency. The research method used is a qualitative approach with a case study in Southeast Aceh Regency. This research involves agricultural extension workers as executors in collecting data and filling in agricultural attributes based on actual conditions in the field which will later be processed into spatial data to become spatial data on potential land in Southeast Aceh Regency. The data analysis method was carried out using content analysis techniques to identify relevant main themes. The strategic recommendations provided include strengthening agricultural land protection regulations, providing economic incentives to farmers, adopting sustainable development principles in spatial planning, and increasing environmental education programs. In addition, the use of geographic information system technology must be optimized for effective land mapping and monitoring. In conclusion, protecting food agricultural land in determining RTRW in Southeast Aceh Regency requires a holistic approach that includes appropriate policies, good planning, community participation and use of technology.With this approach, urban development can take place in a sustainable manner without sacrificing land which is important for food security and environmental sustainability.

***Keywords**: Agricultural Land Protection, Regional Spatial Planning, Southeast Aceh, Sustainable Development.*

INTRODUCTION

The dynamics of urban development in land protection involve various aspects and challenges, including population growth and land needs, land use conflicts, spatial planning policies, sustainable development approaches, community participation and environmental awareness, technological innovation, as well as economic and political factors. This development has a major impact on infrastructure, the environment and the quality of life of residents. The rapid and dynamic development of cities requires the strategic role of regional planning in carrying out urban transformation.(Feby, 2023).Rapid urbanization caused by migration from rural to urban areas increases demand for housing, infrastructure and public services, leading to the conversion of agricultural land to housing and commercial areas, as well as the degradation of ecosystems. The government uses zoning and Regional Spatial Planning (RTRW) to regulate land use, while conservation areas are established to protect biodiversity and important ecosystems.

The conversion of agricultural land is a threat to achieving food security and sovereignty and has serious implications for food production, the physical environment and the welfare of agricultural communities whose livelihoods depend on their land. On the other hand, the conversion of land to

sustainable food farming causes the area of cultivated land to become increasingly narrow and often has an impact on decreasing the level of welfare of farmers. Therefore, the need to control the conversion of sustainable food agricultural land through land protection is one of the efforts to realize food security and sovereignty. Protecting sustainable food agricultural land is important to maintain food security and ecosystem balance. In Indonesia, there are two main regulations governing spatial planning and protection of agricultural land, namely Law no. 26 of 2007 concerning Spatial Planning and Law no. 41 of 2009 concerning Protection of Sustainable Food Agricultural Land.

In Indonesia, steps to achieve food security include sustainable agricultural land management, inclusive agricultural policies, and increasing the efficiency of the food distribution system. Protecting agricultural land from conversion and degradation processes is very important to ensure the continuity of food production in the long term. By maintaining a balance between economic development, environmental protection and social welfare, Indonesia can face food security challenges more effectively and ensure sustainable national food sovereignty. The implementation of Sustainable Food Agricultural Land (LP2B) areas is based on the spatial development of non-agricultural economic sectors, with adjustments to current land use. This is a positive step in avoiding land use violations that have been stipulated in statutory regulations. Marinda et al., 2020 in(Hidayah, S., N., Argenti, G., Gumilar, G., G,.)

Sustainable Food Agriculture Areas must be implemented by the government, from district city governments, provincial governments and the central government as an effort to meet the food needs of the Indonesian people and as an effort to protect fertile agricultural lands that have high agricultural productivity. For this reason, it is necessary to carry out studies to determine the potential of existing agricultural land so that it can be designated as sustainable food agricultural land (LP2B) so that it can protect agricultural land and meet food needs.(Rahmawaty, M., A,.)

LITERATURE REVIEW

Law No. 26 of 2007

Law Number 26 of 2007concerning Spatial Planning is the legal basis for spatial planning in Indonesia. This law aims to create a safe, comfortable, productive and sustainable regional space based on Archipelago Insight and National Resilience. The following are the important points from Law no. 26 of 2007 which is relevant to the protection of sustainable food agricultural land:

1. Spatial Planning Objectives
2. Basic Spatial Planning Policy
3. Spatial plans
4. Sustainable Food Farming Land Protection
5. The Role of Government and Society
6. Sanctions and Legal Enforcement

Law no. 26 of 2007concerning Spatial Planning provides a strong legal framework for the protection of sustainable food agricultural land in Indonesia. Effective implementation requires commitment from central and regional governments, community support, and the application of appropriate technology. Through joint efforts, the goal of national food security can be achieved by maintaining the sustainability of agricultural land.

Law 41 of 2009

Law Number 41 of 2009 concerning Protection of Sustainable Food Agricultural Land (PLP2B) is designed to ensure the sustainability of food agricultural land and support national food security. The following are important points from Law no. 41 of 2009:

1. Purpose of the Act
2. Definition and Scope
3. Land Protection Planning
4. Determination and Control

5. Incentives and Discentives
6. Farmers' Rights and Obligations
7. Community Role
8. Funding
9. Legal Supervision

Sustainable Food Farming Land Protection Scheme

Sustainable Food Agricultural Land Protection Concept Sustainable agriculture is a resource for producing basic human needs, namely clothing, food and shelter, while maintaining and improving the quality of the environment and preserving it. Many regions that were previously self-sufficient in rice have now become regions that import rice from other regions. This threat to food security will not only cause a reduction in rice production but will also disrupt economic, social, political stability and population development in general.(Fikri, N., S., Apriyanto, M., Novitasari, R,. 2020) .

Transfer of Agricultural Land Functions

Land Function Transfer is a process of changing land use from a certain form of use to another use, for example non-agricultural, and usually the change in function leads to things that are negative for the natural environmental ecosystem of the rice fields themselves. Land conversion occurs as a result of economic growth and population growth which continues to increase [3]. This is reflected in the growth in natural resource utilization activities driven by increasing demand for land use as well as a shift in the contribution of primary development sectors, particularly from the agricultural and resource processing sectors to the secondary (manufacturing) and tertiary sectors.(Fikri, N., S., Apriyanto, M., Novitasari, R,. 2020).

Determination of Sustainable Food Farming Land

Determining Sustainable Food Agricultural Land is the process of determining land to become sustainable food agricultural land through procedures that are regulated in accordance with statutory provisions. Determination of sustainable food agricultural land includes:

1. Sustainable food agriculture area (KP2B).
2. Sustainable food agricultural land (LP2B).
3. Sustainable food agriculture reserve land (LCP2B).

Determining sustainable food agricultural land includes a series of stages at the district/city level, such as:

1. Considering the criteria and technical requirements as regulated.(Government Regulation No.1 of 2011).
2. Provisions for the proposed determination of Regency/City agricultural areas contain textual, numerical and spatial data and information.
3. The recommendation for determination was submitted by the Working Group team which carries out government affairs in the field of spatial planning.
4. Proposed determination of sustainable food agricultural land through the recommended sustainable food agricultural land working group to propose as a regent's decree/regulation regarding recommendations for the protection of sustainable food agricultural land.

METHOD

Research Area

The study area for this research study covers all administrative boundaries in Southeast Aceh Regency. Southeast Aceh Regency, which consists of 16 sub-districts, is a district that borders directly on North Sumatra Province.

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Figure 1 Research Study Area

Research Approach

This research was conducted using a qualitative method that uses spatial data as the main material that will be discussed with stakeholders related to agricultural land protection.

Data collection technique

This research uses a multidisciplinary approach that includes spatial analysis, field surveys, and literature review as the main methods in evaluating the protection and sustainable management of agricultural land for food. This research uses 2 data collection methods, namely: primary survey and secondary survey. The following is a table of data requirements in this research:

Tabel. 1 Research Data Needs

No	Research purposes	Data Type	Data source	Data analysis technique	Expected results
1	Updating the area of raw rice fields based on the results of observations and remote sensing observations	`Google earth images, SAS Planet, Landsat 8 images	Literature Study, Basemap	Remote Sensing Analysis	Updating raw rice fields and potential land
		LBS SK 686 of 2019	Agriculture Service/National Land Agency Office		
		Updating Raw Rice Fields	Interpretation, Observation		
		Base Map	PUPR Department/Bappeda Kab. Southeast Aceh		
2	Mapping of potential land and considering policy aspects	Potential Land	PUPR Department/Bappeda Kab. Southeast Aceh	Spatial Attribute Analysis	There is an agricultural information map
		Forest	PUPR Department/Bappeda Kab. Southeast Aceh	Overlay Analysis	Policy adjustments
		Aspects of City Development	LP2B Working Group		

Source: Researcher, 2024

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Data analysis

This research uses several analyzes to achieve the objectives in the research. Overall, this research uses spatial analysis methods, policy analysis, and captures the aspirations of local governments in land protection recommendations. Following is the research flow framework below:

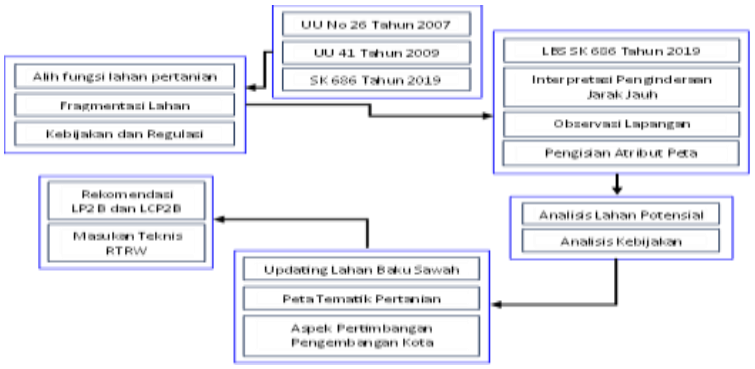

Figure 2 Research Flow Diagram

Spatial Analysis

Spatial attribute analysis in the context of this research is spatial data containing tabular data which will later be integrated into spatial data. The stages carried out are a systematic process of examining, exploring and analyzing information related to non-spatial characteristics or attributes connected to geographic objects on the map. This includes tracking and deep understanding of attribute data such as soil type, land use, or demographic information contained in each geographic entity represented. The basic principles in spatial analysis of map attributes include data classification, correlation analysis between attributes, application of spatial statistics, monitoring temporal changes, and the use of overlay techniques to understand interactions between attributes in a broader geographic context.

Policy Analysis

Policy analysis in this research is a structured analysis process to understand, evaluate, and suggest recommendations related to public policy. This analysis involves comprehensive data collection and analysis by prioritizing problem identification and understanding developments in an area, evaluating the goals to be achieved, and assessing the effectiveness and impact of current policies. Apart from that, policy analysis also pays attention to a deep understanding of the social, economic, political and environmental context in which the policy is implemented, as well as recognizing the stakeholders involved. The findings from this analysis are used to formulate policy recommendations that can improve policy implementation, support the achievement of desired goals, and overcome challenges that may arise.

Overlay Analysis

The overlay analysis method is a technique in geographic information systems (GIS) that is used to integrate, compare, and analyze information from various thematic layers or maps that overlap on top of each other. This approach is useful for understanding the spatial relationships between various geographic features or attributes in an area. The following are the general stages in the overlay analysis method:

7. Data Selection
8. Map Projection System
9. Digitalization
10. Area slice
11. Data tabulation

RESULTS AND DISCUSSION

Regional Overview

Southeast Aceh Regency is one of the districts in Aceh Province which is surrounded by the Gunung Leuser and Bukit Barisan National Park Forests with an altitude of 25-1,000 meters above sea level. The capital of Southeast Aceh Regency is Kutacene City. Astronomically, Southeast Aceh Regency is located at 3055'23"- 4016'37" North Latitude and 96043'23"-98010'32" East Longitude. Furthermore, according to geographical location, Southeast Aceh Regency borders:

North : Gayo Lues Regency
South side : Karo Regency
East : Langkat Regency
West side : South Aceh Regency

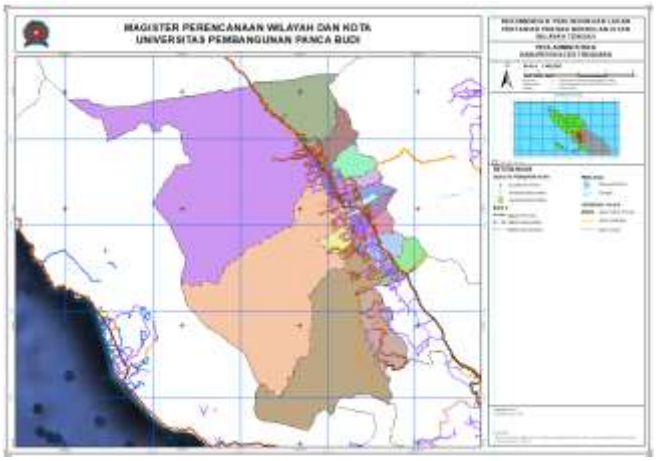

Figure 3 Map of Administrative Boundaries of Southeast Aceh Regency

Spatial Analysis

Spatial analysis in this research is analyzing initial data on raw rice fields in Southeast Aceh Regency based on the Decree of the Minister of Agrarian Affairs and Spatial Planning No. 686 of 2019. This research involves agricultural extension workers as a survey team in collecting data on information and agricultural conditions in Southeast Aceh Regency.

Updating Raw Rice Fields

Raw Sawah Land (LBS) in Southeast Aceh Regency based on the Decree of the Minister of ATR/Head of BPN No. 686/SK-PG.03.03/XII/2019 concerning the Determination of National Raw Rice Land (LBS) covering an area of 8,783.10 Ha spread across 15 sub-districts in Southeast Aceh Regency. The condition of agricultural land that has become LBS has of course undergone changes in several sub-districts, such as becoming moorland, becoming built-up land in the form of roads and settlements, becoming bodies of water and there are also LBS becoming plantations which are grouped into other activities which of course will reduce the area of LBS that has been determined. Based on the spatial analysis that has been carried out, reducing LBS into other activities including:

- Rice fields become food fields covering an area of 1,178.67 hectares spread almost throughout the sub-district.
- Rice fields are a building activity covering an area of 197.25 hectares which occurs in almost all sub-districts.
- Rice fields become bodies of water in the form of rivers, tributaries, swamps and ponds covering an area of 539.40 hectares.

- Rice fields become other activities such as plantations, bushes, empty land covering an area of 366.53 Ha.

Tabel. 2 Land Change Matrix Based on Basline SK 686 of 2019

No	Subdistrict	Identification (Ha) Category (LBS 2019)					
		Ricefield	Food Moor	Awakened	Body of Water	Other	Total
1	Babulmakmur	576.17	359.11	6.49		63.41	**1,005.18**
2	Babulrahmah	362.20	15.83	5.42	7.86	15.67	**406.98**
3	Babussalam	186.70	93.92	23.97	6.19	10.63	**321.41**
4	Badar	17.76	23.32	0.48	6.35	4.59	**52.48**
5	Bambel	655.78	78.55	27.87	19.44	36.66	**818.29**
6	Bukittusam	543.81	2.76	1.26	1.10	20.71	**569.64**
7	Darulhasanah	255.97	50.46	7.72	205.75	0.63	**520.52**
8	Delengpokhkisen	454.44	26.66	18.84	99.45	12.77	**612.16**
9	Ketambe						-
10	Lawealas	701.71	123.69	21.28	7.65	44.61	**898.94**
11	Lawebulan	435.60	74.48	47.91	137.86	26.47	**722.32**
12	Lawesigala-Gala	562.90	309.96	1.38	4.50	100.92	**979.65**
13	Lawesumur	454.46	19.75	16.49	33.65	11.39	**535.74**
14	Leuser						-
15	Samedam	1,085.08	0.19	9.91	4.63	10.62	**1,110.44**
16	Tanohalas	208.68		8.22	4.97	7.47	**229.34**
Total		**6,501.25**	**1,178.67**	**197.25**	**539.40**	**366.53**	**8,783.10**

Source: Analysis Results, 2023

Apart from identifying the reduction in raw paddy field land (LBS) as explained above, the spatial analysis activities carried out also identified additions which will certainly expand the LBS in Southeast Aceh Regency. The addition of LBS was carried out spatially in the form of digitization improvements to the 2019 LBS as well as digitization via satellite imagery of expanses of rice fields which had not been digitized in 2019. Apart from rice fields, additional identification activities through spatial analysis also digitize expanses of moorland which will later become one unit to be proposed as LP2B for Southeast Aceh Regency.

Tabel. 3 Proposed LP2B Matrix for Southeast Aceh Regency

No	Subdistrict	Identification (Ha) Category (Non LBS 2023)			Update on Rice Fields 2023	LP2B proposal
		Ricefield	Food Moor	Total		
1	Babulmakmur	252.48	347.87	**600.35**	828.65	1,535.63
2	Babulrahmah	172.45	186.40	**358.85**	534.65	736.88
3	Babussalam	22.78	125.72	**148.50**	209.48	429.11
4	Badar	10.65	109.54	**120.19**	28.41	161.27
5	Bambel	146.60	196.99	**343.59**	802.37	1,077.91
6	Bukittusam	407.21	208.15	**615.36**	951.01	1,161.92
7	Darulhasanah	163.52	148.24	**311.76**	419.49	618.19
8	Delengpokhkisen	44.55	49.23	**93.78**	498.99	574.88
9	Ketambe	106.38	111.23	**217.61**	106.38	217.61
10	Lawealas	134.19	316.25	**450.44**	835.91	1,275.84
11	Lawebulan	74.39	71.49	**145.88**	509.99	655.95
12	Lawesigala-Gala	226.55	321.67	**548.23**	789.45	1,421.09
13	Lawesumur	139.98	96.68	**236.66**	594.44	710.87

14	Leuser		1,254.31	**1,254.31**	-	1,254.31
15	Samedam	119.53	233.93	**353.46**	1,204.61	1,438.73
16	Tanohalas	83.45	24.41	**107.86**	292.14	316.54
Total		**2,104.72**	**3,802.11**	**5,906.83**	**8,605.97**	**13,586.74**

Source: Analysis Results, 2023

The addition of rice fields based on improvements and additional digitization of satellite imagery resulted in additional rice fields covering an area of 2,104.72 hectares spread throughout the sub-district. Additional moorland based on digitization improvements covering an area of 3,802.11 Ha. For more details, see the map below of the distribution and updated results of rice fields in Southeast Aceh Regency.

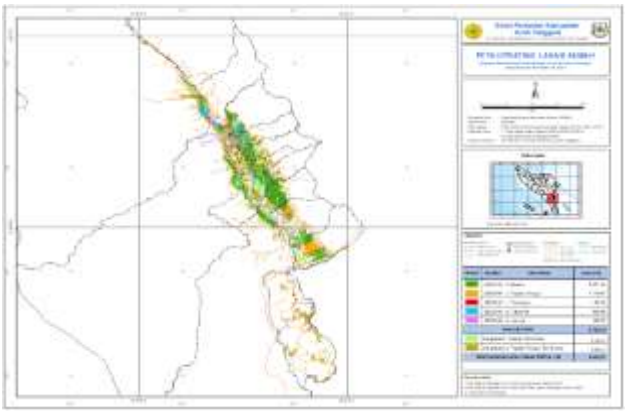

Figure 4 Updated map of raw rice fields in Southeast Aceh Regency

Potential Land

a. Rice Fields Based on Land Type

Based on the type, in general, rice fields consist of several types based on the completeness of the infrastructure and their characteristics, namely irrigated rice fields, lowland rice fields, tidal rice fields, rain-fed rice fields and river/reservoir rice fields. Southeast Aceh Regency only has 2 types of rice fields, namely:

- Irrigated rice fields are an agricultural system with regular irrigation, not dependent on rainfall because irrigation is always available throughout the year and the volume of irrigation water entering primary, secondary and tertiary channels can be measured. Irrigated rice farming usually harvests twice a year and in the dry season it can be alternated with food crops such as sweet potatoes and corn.
- Rainfed Rice Fields are rice fields that receive water only during the rainy season so they really depend on the season. Rain-fed rice fields are planted with kakau rice. However, in the dry season it is planted with secondary crops and corn.
-

Tabel. 4 Paddy Land Matrix Based on Land Type

No	Subdistrict	Land Type (Ha)		Total
		Irrigation Rice Fields	Rain-Fed Rice Fields	
1	Babulmakmur	825.48	3.18	828.65
2	Babulrahmah	534.65		534.65
3	Babussalam	199.05	10.43	209.48
4	Badar	28.41		28.41
5	Bambel	797.32	5.05	802.37

6	Bukittusam	928.04	22.98	951.01
7	Darulhasanah	366.56	52.92	419.49
8	Delengpokhkisen	498.99		498.99
9	Ketambe	106.38		106.38
10	Lawealas	835.91		835.91
11	Lawebulan	507.45	2.54	509.99
12	Lawesigala-Gala	789.45		789.45
13	Lawesumur	589.06	5.38	594.44
14	Leuser			-
15	Samedam	746.96	457.65	1,204.61
16	Tanohalas	292.14		292.14
Total		**8,045.84**	**560.13**	**8,605.97**

Source: Analysis Results, 2023

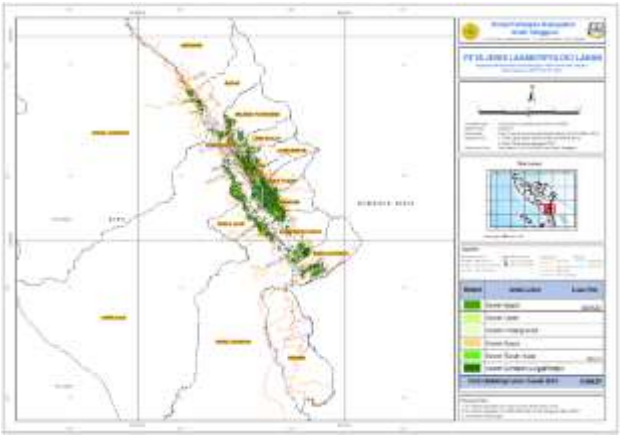

Figure 5 Updated map of raw rice fields in Southeast Aceh Regency

Rice Fields Based on Irrigation Conditions

Irrigation is an effort to systematically distribute water for plant growth to the cultivated land. Based on regulations, the definition of irrigation is the business of providing, regulating and disposing of irrigation water to support agriculture, the types of which include surface irrigation, swamp irrigation, underground water irrigation, pump irrigation and pond irrigation.

- Based on its classification, irrigation is divided into three types, namely:
- Technical Irrigation, is an irrigation network where the water is regulated and can be measured;
- Semi-Technical Irrigation, is an irrigation network whose water can be regulated but cannot be measured;
- Simple irrigation or non-technical irrigation, is an irrigation network that is not equipped with measuring buildings or doors.

Tabel. 5 Rice Field Distribution Matrix Based on Irrigation Type

No	Subdistrict	Irrigation (Ha)					Total
		Technical Irrigation		Non-Technical Irrigation		Non Irrigation	
1	Babulmakmur		274.71	3.48	547.29	3.18	828.65
2	Babulrahmah	347.64	187.01				534.65
3	Babussalam	156.39	42.66			10.43	209.48
4	Badar	10.09	5.24	10.21	2.87		28.41
5	Bambel	541.43	255.89			5.05	802.37
6	Bukittusam	579.84	348.19			22.98	951.01
7	Darulhasanah	110.41	39.43	215.54	1.18	52.92	419.49

8	Delengpokhkisen	498.58	0.40				498.99
9	Ketambe	106.38					106.38
10	Lawealas	14.62	821.29				835.91
11	Lawebulan	440.69	66.76			2.54	509.99
12	Lawesigala-Gala	74.16	489.51	208.47	17.32		789.45
13	Lawesumur	500.56	88.50			5.38	594.44
14	Leuser						-
15	Samedam	7.64	672.60	10.90	55.82	457.65	1,204.61
16	Tanohalas	105.76	186.37				292.14
	Total	**3,494.20**	**3,478.56**	**448.59**	**624.48**	**560.13**	**8,605.97**

Source: Analysis Results, 2023

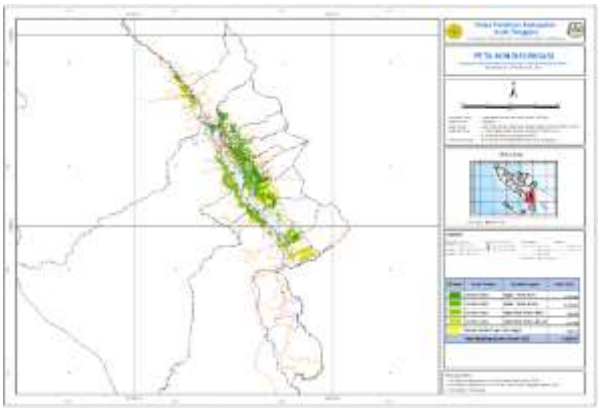

Figure 6 Map of Agricultural Land Based on Irrigation Conditions

Rice Fields Based on Cropping Index

The Planting Index (IP) is defined as the average planting and harvest period in one year on the same land. Increasing the rice planting index (IP) is one of the efforts made in the agricultural sector, especially rice plants, which aims to increase rice production. Apart from increasing IP, efforts that can be made are increasing rice productivity. Overall, Southeast Aceh Regency has 3 planting seasons, interspersed with several commodities such as dry food.

Tabel. 6 Paddy Land Matrix Based on Cropping Index

No	Subdistrict	IP (Ha)			Total
		100.00	**200.00**	**300.00**	
1	Babulmakmur	271.44	521.17	36.05	828.65
2	Babulrahmah		534.65		534.65
3	Babussalam	10.43	198.88	0.17	209.48
4	Badar	6.41	8.42	13.58	28.41
5	Bambel	164.98	637.39		802.37
6	Bukittusam	383.13	567.88		951.01
7	Darulhasanah	219.89	191.21	8.38	419.49
8	Delengpokhkisen	10.20	99.29	389.50	498.99
9	Ketambe		106.38		106.38
10	Lawealas		835.91		835.91
11	Lawebulan	42.73	466.84	0.42	509.99
12	Lawesigala-Gala	403.82	385.63		789.45
13	Lawesumur	41.35	553.09		594.44
14	Leuser				-
15	Samedam	1.16	1,203.45		1,204.61

16	Tanohalas		292.14		292.14
	Total	**1,555.55**	**6,602.33**	**448.09**	**8,605.97**

Source: Analysis Results, 2023

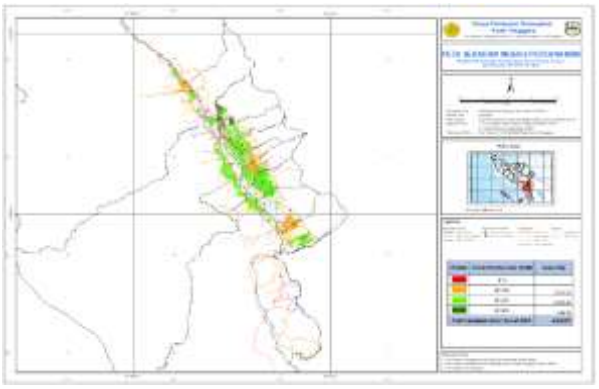

Figure 7 Map of Agricultural Land Based on Planting Index

Rice Fields Based on Productivity

Productivity is a value that shows the average production yield per unit area per food crop commodity (rice; corn; soybeans; peanuts; green beans; cassava) in a one year period. The productivity value of rice fields planted in Southeast Aceh Regency is divided into 4 ranges of categories, namely rice fields which have a productivity of 3 – 4.9 tons/Ha, productivity 5 – 5.9 tons/Ha, 6 – 6.9 tons/Ha and land rice fields that have a productivity of > 7 tons/ha.

Tabel. 7 Paddy Land Matrix Based on Productivity

No	Subdistrict	Productivity (Ha)				Total
		3 - 4.9	**5 - 5.9**	**6 - 6.9**	**> 7**	
1	Babulmakmur		271.44	515.59	41.62	828.65
2	Babulrahmah	187.01	347.64			534.65
3	Babussalam	10.43	2.90	196.16		209.48
4	Badar	5.45	5.20	17.76		28.41
5	Bambel	133.30	238.65	430.43		802.37
6	Bukittusam	423.34	347.08	180.59		951.01
7	Darulhasanah	17.76	181.46	220.27		419.49
8	Delengpokhkisen			498.99		498.99
9	Ketambe		106.38			106.38
10	Lawealas	43.89	753.46	38.56		835.91
11	Lawebulan	2.46	461.79	45.73		509.99
12	Lawesigala-Gala	1.15	336.08	445.74	6.49	789.45
13	Lawesumur		4.83	589.61		594.44
14	Leuser					-
15	Samedam	453.66	625.16	125.79		1,204.61
16	Tanohalas	247.10	45.04			292.14
	Total	**1,525.54**	**3,727.11**	**3,305.20**	**48.11**	**8,605.97**

Source: Analysis Results, 2023

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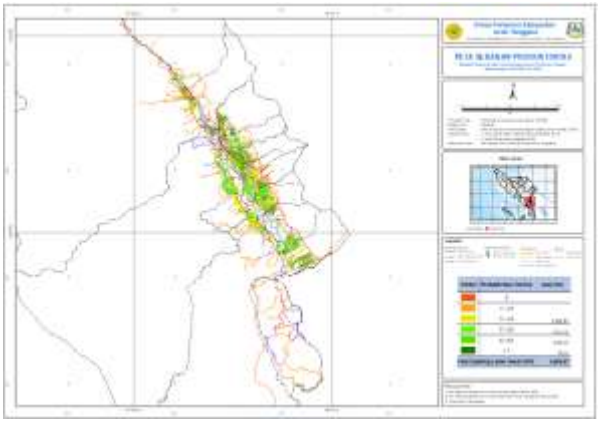

Figure 8 Map of Agricultural Land Based on Productivity

Rice Fields Based on Water Sources

Water is one of the most important products in food products. If water is not available then food production will stop. This means that water resources are a key factor for sustainable agriculture, especially irrigated agriculture. Sustainable agriculture is simply defined as an effort to maintain, extend, improve and continue the productive capacity of agricultural resources to meet food consumption needs. In order to realize sustainable agriculture, agricultural resources such as available water and land need to be utilized efficiently and successfully.

Tabel. 8 Paddy Land Matrix Based on Water Sources

No	Subdistrict	Water Source Ha)			Total
		River	Rain	Other	
1	Babulmakmur	825.48		3.18	828.65
2	Babulrahmah	534.65			534.65
3	Babussalam	199.05	10.43		209.48
4	Badar	28.41			28.41
5	Bambel	797.32	5.05		802.37
6	Bukittusam	928.04		22.98	951.01
7	Darulhasanah	366.56		52.92	419.49
8	Delengpokhkisen	498.99			498.99
9	Ketambe	106.38			106.38
10	Lawealas	835.91			835.91
11	Lawebulan	507.45	2.54		509.99
12	Lawesigala-Gala	789.45			789.45
13	Lawesumur	589.06	5.38		594.44
14	Leuser				-
15	Samedam	746.96		457.65	1,204.61
16	Tanohalas	292.14			292.14
Total		**8,045.84**	**23.40**	**536.73**	**8,605.97**

Source: Analysis Results, 2023

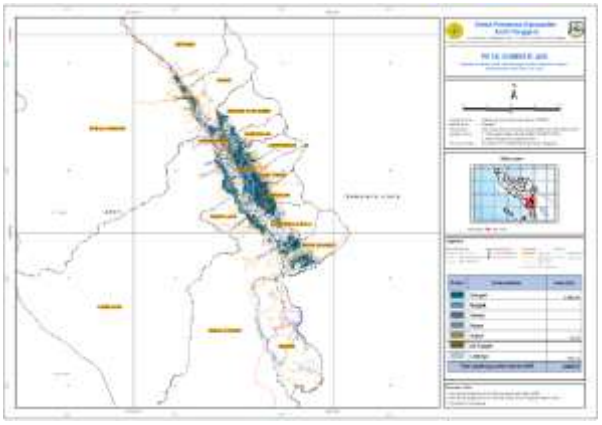

Figure 9 Map of Agricultural Land Based on Water Sources

Recommendations for Sustainable Food Farming Land

Several issues or policies were raised in the changes to the first working group, such as ensuring the use of the outer boundaries of the Regency using the latest/updated segmentation. You can see the segmentation of the outer boundaries of the Regency in Southeast Aceh below:

a. Administrative Limit Agreement.
   Regency/Outer Boundaries use Permendagri segmentation
   - Southeast Aceh - Langkat (Minister of Home Affairs Regulation Number 33 of 2020)
   - Southeast Aceh - Karo (Minister of Home Affairs Regulation Number 29 of 2020)
   - Southeast Aceh - Dairi (Permendagri Number 32 of 2020)
   - South Aceh - Southeast Aceh (Permendagri Number 24 of 2018)
   - Southeast Aceh-Subulussalam City (Minister of Home Affairs Regulation Number 25 of 2018)
   - Southeast Aceh - Gayo Lues (Minister of Home Affairs Regulation Number 21 of 2019)

b. Inner Boundaries/Per-District Boundaries in the Southeast Aceh administrative area
   - Using the boundaries issued by the Indonesian Earth Map in 2018

c. Issuing areas that are estimated as aspects of area development and as material for consideration in the LP2B determination policy.
   - Buffering 50 meters on national strategic roads
     - Kutacane - North Sumatra Border
     - Jl. Gayo Lues - Kutacane border
   - Buffering 40 meters on strategic provincial roads
     - Jl. Sp. Lawe Desky - Muara Situlen - Subulussalam City Limits
   - Buffering 30 meters on strategic district roads
     - Bakti Village - Muara Situlen
     - Sp. Lawe Penanggalan - Sp 4 Tanjung - Datuk Mbarung Sedane - Salim Pipit - Perdomuan (west line)
     - Muara Situlen - Kane Mende - Permata Musara - Bunbun Indah - Naga Timbul - North Sumatra Border
     - Kute Bakti - Pak-pak Hamlet
     - Sp. Semadam - Lawe Dua - Lawe Sumur - Lawe Sago – Beriring Naru - Lawe Mengkudu (Southeastern)

d. Clear and clean utilization policy by overlaying some of the data used:
   - Forest Area Map - SK 6609 of 2021
   - Indicative Map for Termination of Granting of New Permits (PIPPIB) - KSP BIG
   - Cultivation Rights Map

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Tabel. 9 Identification Matrix for Proposed Recommendations for Sustainable Food Agricultural Land Protection with Policy Considerations in Southeast Aceh Regency

No	Subdistrict	FP 1 - Entering Forest Area SK 6609	FP 2 - Enter into the Regional Strategic Plan - Spatial Planning
1	Babulmakmur	35.61	40.25
2	Babulrahmah		16.19
3	Babussalam		1.76
4	Badar		2.06
5	Bambel		24.48
6	Bukittusam	2.87	0.53
7	Darulhasanah		7.44
8	Delengpokhkisen		13.71
9	Ketambe		16.84
10	Lawealas		15.04
11	Lawebulan		10.24
12	Lawesigala-Gala		2.56
13	Lawesumur		12.11
14	Leuser	201.71	19.21
15	Samedam	0.53	0.53
16	Tanohalas		7.23
Total Area (Ha)		**240.72**	**190.20**

Source: Analysis Results, 2023

It can be seen from the table above that overall Rice Field/Moorland is included in 2 deduction factors, namely FP 1 (Forest Area), FP 2 (Spatial Planning). From the overlay results used, 240.72 Ha, which was originally recommended by LP2B, turns out to be included in the forest area zone in Southeast Aceh Regency. So that there is no overlapping of data, policies or hindering regional economic development, in this case the PUPR Service through the Spatial Planning Division proposes for areas in urban areas to free up rice fields using a buffering method in accordance with the function/classification of existing roads, from the reduction results. of which there are 190.20 Ha which have been released as recommendations for land protection in Southeast Aceh Regency.

The recommendation for sustainable food agricultural land protection was determined by making a memorandum of agreement which was contained in the minutes of agreement which were signed by all working group teams who were members of the regent's decision letter regarding the land protection recommendation working group. The following is a description of the results obtained from the discussion at the working group.

Tabel. 10 Recapitulation matrix Description of the Results of the LP2B Working Group Agreement in Southeast Aceh Regency

No	Subdistrict	LP2B proposal	Total Proposals Accommodated / Approved (Ha)		Additions Not Proposed	Total Deal (Ha)	
			Ricefield	Moor	LP2B	LP2B recommendation	LCP2B Recommendations
1	Babulmakmur	1,535.63	807.27	654.91		1,462.18	62.11
2	Babulrahmah	736.88	528.32	194.81	0.00	723.12	15.31

3	Babussalam	429.11	208.43	219.50	16.75	427.93	11.79
4	Badar	161.27	27.86	131.35	0.77	159.21	4.59
5	Bambel	1,077.91	787.72	270.03	6.45	1,057.75	44.26
6	Bukittusam	1,161.92	950.49	208.53	0.00	1,159.01	21.70
7	Darulhasanah	618.19	415.46	198.12	21.81	613.57	2.36
8	Delengpokhkisen	574.88	488.84	75.34	2.04	564.18	17.62
9	Ketambe	217.61	105.33	95.43		200.76	12.42
10	Lawealas	1,275.84	829.98	432.01	4.59	1,261.99	46.73
11	Lawebulan	655.95	506.00	144.34	5.99	650.34	27.41
12	Lawesigala-Gala	1,421.09	787.82	631.41		1,419.23	100.77
13	Lawesumur	710.87	584.52	115.98	2.70	700.50	24.64
14	Leuser	1,254.31		1,045.68		1,045.68	
15	Samedam	1,438.73	1,204.57	233.10	0.82	1,437.67	13.91
16	Tanohalas	316.54	287.90	24.04	5.76	311.94	7.41
Total Area (Ha)		**13,586.74**	**8,520.52**	**4,674.57**	**67.67**	**13,195.08**	**413.01**

Source: Analysis Results, 2023

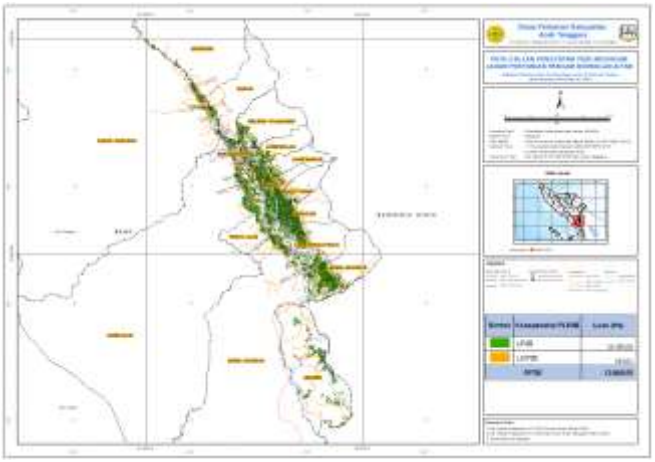

Figure 10 Map of Recommendations for Sustainable Food Agricultural Land Protection

CLOSING

Establishing sustainable agricultural land protection involves a series of decisions and actions to ensure that agricultural land is maintained in a way that supports sustainable food production. The

following are some conclusions that may be obtained in the context of establishing sustainable food agricultural land protection:

- Awareness of the Importance of Agricultural Land:
  The establishment of agricultural land protection shows awareness of the importance of maintaining agricultural land as a vital asset for sustainable food production.
- Recognition of the Value of Agricultural Ecosystems:
  Sustainable agricultural land protection reflects recognition of the value of agricultural ecosystems in supporting biodiversity, carbon sequestration, and other ecological functions.
- Stakeholder Participation:
  The determination process involves active participation from various stakeholders, including farmers, regional governments, local communities, and non-governmental organizations.
- Understanding of Threats and Challenges:
  The establishment of sustainable agricultural land protection reflects a deep understanding of the various threats and challenges facing agricultural land, such as land degradation, climate change and urbanization.
- Application of Sustainable Principles:
  Determination decisions are based on sustainability principles, including consideration of current and future needs, as well as the balance between economic, social and environmental.
- Monitoring and Evaluation System Development:
  Establishing sustainable agricultural land protection involves developing monitoring and evaluation systems to measure the impact of policies and actions and ensure long-term sustainability.
- Continuity and Expansion:
  Conclusions can also include plans to maintain sustainability and even expand efforts to protect sustainable agricultural land to other areas or on a larger scale.

The need to carry out routine activities which are the main part in carrying out the main tasks and functions of each part of the workforce/employees involved in collecting data in the field. Updating applicable information and regulations both technically and non-technically, so that the information can be understood according to the applicable rules by looking at existing standards.

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