



# Evaluate the suitability of regional spatial planning Tanggamus Regency

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## ABSTRACT

Organizing spatial planning is important to achieve safe, comfortable and sustainable spatial conditions. Regional Government plays a key role in preparing regional spatial plans and controlling space utilization. Monitoring and evaluation is carried out routinely to assess the suitability of space utilization. Evaluation of the Suitability of the Spatial Planning of Tanggamus Regency in 2023 show a level of conformity of 88.71%, in the QUALITY category. The conclusion of the analysis highlights aspects that need to be considered in space management in Tanggamus Regency, providing a basis for policy formulation that maintains consistency in space use and increases conformity with spatial plans.

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## 1. INTRODUCTION

The spatial planning law explains that the implementation of development at the central and regional levels must be in accordance with the spatial planning plans that have been determined. Therefore, the use of space which includes structures, patterns and strategic areas must be in accordance with the regional spatial plan that has been determined. Therefore, it is necessary to evaluate the existing regional spatial plan to ensure that the plan is running according to its use or whether there are any deviations (Rohaya Putri Mokodongan, 2019). Land suitability evaluation is the process of assessing the suitability of land for various specific use options. The basic framework of land evaluation is to match the quality of land with the conditions required for a particular use. This is intended to avoid problems that can harm many people, such as environmental damage. The location of residential development must be placed according to the land (Putra & Papilaya, 2019).

Efforts to organize regional space, both at the national, provincial and district and city levels, cannot be separated from efforts to realize a sustainable development process and to ensure that the future use of space can run well (Simamora & Andrie Gusti Ari Sarjono, 2022). Implementing spatial planning is an effort to create a safe, comfortable, productive and sustainable environment. In this context, planning, utilization and control of space becomes the main focus. Regional Government has a central role in managing these aspects. Regional spatial planning requires careful financing and monitoring. The authority to prepare regional spatial planning lies with the Regional Government, but it needs to be improved in terms of monitoring and evaluating spatial use. So a review of each implementation is needed.

Therefore, it is important to assess the consistency of space use in regional spatial plans. Therefore, it is necessary to study monitoring instruments, including monitoring and evaluating space utilization. Law Number 26 of 2007 and Government Regulation Number 21 of 2021 regulate the control of space utilization. Monitoring and evaluation of space utilization is carried out regularly to determine the level of suitability and evaluation of utilization activities. The results of this study are the basis for reviewing regional spatial plans. Based on this, as an effort to control space utilization, the Tanggamus Regency Government through the Public Works and Public Housing Department is carrying out activities to prepare the Suitability of Space Utilization for Tanggamus Regency in 2023.

Based on the theoretical understanding and empirical experience above, conceptually regional development can be formulated as a series of efforts to realize integration in the use of various resources, strengthen and balance national development and national territorial unity, increase harmony between regions, integration between development sectors through the spatial planning process. in order to achieve sustainable development goals.

## **2. RESEARCH METHOD**

### **Methodological Approach in Monitoring and Evaluation**

The approach used in monitoring and evaluation consists of five approaches. The five approaches are as follows: (1). Comprehensive Rational Approach; Using this approach, Tanggamus Regency is positioned as a complex spatial system, where there are various elements that interact with each other. This approach involves comprehensive planning, accurate forecasting, providing complete information, and ensuring that every aspect of space use is identified and managed carefully. (2). Deduction and Induction Approach; With a deduction approach, existing theories and cases are used as an initial basis for conducting evaluations. Meanwhile, the induction approach is used by referring to empirical data; that focuses on local conditions. This research uses these two approaches to analyze Tanggamus Regency. (3). Regional Approach; A regional approach is used to understand the interaction of various spatial components, covering environmental, economic aspects and facilitating integrated and sustainable planning. (4). Technical and Economic/Financial Approaches; This technical approach is related to the implementation of methods and technology in space utilization. Meanwhile, the economic/financial approach focuses on the feasibility and resources needed for spatial planning. (5). Sustainable Environmental and Socio-Cultural Approach; Because Tanggamus Regency emphasizes a balance between development and environmental preservation, this approach is an approach that can ensure environmental preservation and development. Where every process of space utilization activity does not disturb the ecological balance. Meanwhile, the socio-cultural approach is useful for ensuring that socio-cultural aspects can be integrated into space planning and management.

### **Work Program Stages in Space Utilization Evaluation**

Stages of the Space Utilization Evaluation Work Program will be carried out in four stages. The four stages are as follows: (1). Preparation phase; This stage includes preparing the work reference framework and also determining the methodology that will be used. This stage is very important to determine the direction and scope of the entire monitoring and evaluation process. (2). Data collection; This stage is related to determining the quality of the analysis. At this stage primary and secondary data are collected, in order to get a clear picture of the planning area. This data includes land use, environmental conditions and socio-economic aspects. (3). Processing and analysis of data; The data that has been collected is then analyzed. This analysis uses space utilization matrix analysis, space utilization suitability analysis, and space utilization suitability level analysis. This stage carries out the process of identifying problems as well as opportunities for space utilization in Tanggamus Regency. (4). Follow-up Recommendations; After the analysis is carried out, then. Recommendations are made for the development of policies and strategies that will be used for space utilization. The recommendations themselves are based on the suitability of space utilization which includes various aspects, such as: spatial restructuring, infrastructure development, and protection of conservation areas.

### 3. RESULTS AND DISCUSSIONS

#### Overview and Area: Basic Physical Conditions and Environment

Tanggamus Regency is at an altitude of 0 to 2,115 meters above sea level (masl). Meanwhile, Gisting District and East Agung City are located at an altitude of 500 meters above sea level, precisely on Mount Tanggamus. Tanggamus Regency has an area of 2,855.46 Km<sup>2</sup> for land area plus a sea area of 1,799.50 Km<sup>2</sup> with a total area of 4,654.98 Km<sup>2</sup>, with regional topography varying between lowlands and highlands, some of which are hilly to mountainous areas. namely around 40% of the entire area with a height above sea level between 0 and 2,115 meters.

Tanggamus Regency also has various slope classes, consisting of four classes, namely flat, gentle, steep and very steep. The classification of land slope in Tanggamus Regency is as follows: (1). A slope of 0-2% covers 21,973 Ha or 7.4% of the total area of Tanggamus Regency. The condition of the area with this slope value is included in the flat category so it can be said that this area has the potential to be developed for agriculture and settlement; (2). A slope of 2-15% covers 17,142 Ha or 5.8% of the total area of Tanggamus Regency. This slope is included in the landau category. Areas that have this slope can be developed for agricultural businesses or settlements; (3). A slope of 15-40% covers 164,700 Ha or 55% of the total area of Tanggamus Regency. With this fairly high slope value, this area falls into the moderately steep to steep category. This area is good for farming perennial or annual crops because areas with this slope value are easily subject to erosion and have low water holding capacity. On the other hand, this area is prone to landslides due to the condition of the soil, therefore this area is not suitable for construction or settlement; and (4). Slope >40% covers 94,006 Ha or 34% of the total area of Tanggamus Regency. This area is in the very steep category so land use is limited to conservation land because it has a high sensitivity to erosion. Apart from that, this land has high run off and low water holding capacity. Therefore, the land is not suitable for construction or settlement so it must be made into a forest area which functions as a hydrological protector and maintains the balance of the ecosystem and the environment.

Tanggamus Regency, as an area rich in natural resources, allocates the majority of this potential to agricultural activities. Apart from this sector, there are various other natural resources that have potential for development, including gold mining, minerals such as granite, marble or marble. Apart from that, there is also the potential for hot springs and geothermal sources which could be developed as alternative sources of electrical energy.

In the context of land cover, surface conditions in Tanggamus Regency are reflected in physical environmental factors, such as land height, slope and soil type. Land cover patterns in general can be broken down into several types, including settlements, rice fields, shrubs, mixed gardens, livestock, forests, swamps, ponds, moors/farms, beach sand, and others. More detailed information regarding land cover in Tanggamus Regency can be found in the following table

**Table 1.** Land cover area of tanggamus regency

No	Land Cover Types	Area (Ha)	Percentage (%)
1	Water body	13.2953	0.005
2	Primary Dryland Forest	54478.0	18.474
3	Secondary Dryland Forest	77644.3	26.330
4	Industry	29.6095	0.010
5	Mixed Gardens	41477.4	14.065
6	Agricultural land	8396.03	2.847
7	Settlement	5745.01	1.948
8	Plantation	62481.8	21.188
9	Mixed Plantation	22630.6	7.674
10	Mining	85.8597	0.029
11	Ricefield	12099.2	4.103
12	Shrubs	7012.11	2.378
13	River	2186.06	0.741
14	Pond	612.948	0.208

Source: Tanggamus Regency RTRW 2011 – 2031

### Analysis of the Level of Suitability of Space Utilization

Based on the Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency Number 9 of 2017 concerning Guidelines for Monitoring and Evaluation of Space Utilization, it is explained that space utilization is an effort to realize the structure and polarity of money in accordance with the Spatial Planning Plan through the preparation and implementation of programs and their financing. Monitoring the use of space is a direct and/or indirect observation activity towards efforts to realize the structure and money polar program in accordance with the established Spatial Planning Plan.

Space utilization evaluation is an assessment activity of efforts to realize the spatial structure and pattern program in accordance with the established Spatial Planning Plan. Monitoring and evaluation of space utilization is carried out on the level of suitability of the embodiment of the spatial structure and the level of suitability of the embodiment of the spatial pattern.

The classification of the results of the evaluation of suitability of space utilization is presented in the following table:

**Table 2.** Classification of evaluation results for suitability of space utilization in tanggamus regency

No	Value	Classification	Recommendation
1	80 – 100 %	The level of suitability for QUALITY space utilization, meaning that the implementation of space utilization is in accordance with the structural plan and spatial pattern in the RTR	Recommendations in the form of policy suggestions and
2	50 – 80 %	The level of suitability of space utilization is LESS QUALITY, meaning that the implementation of space utilization is not in accordance with the structural plan and spatial pattern in the RTR	Strategy to maintain and/or improve the suitability of the program and location of the space utilization program and/or suggestions for partial revision of the RTR through reviewing structural plans and spatial patterns
3	0 – 50 %	The level of suitability of space utilization is NOT QUALITY, meaning that the implementation of space utilization is not in accordance with the structural plan and spatial pattern in the RTR.	Recommendations in the form of policy suggestions and

*Source: Minister of ART/Head of BPN Regulation No. 9 of 2017*

### Analysis of the Level of Suitability of Spatial Structure

The spatial structure is an arrangement of settlement centers and a network system (a district urban system with rural areas in its service area) and a district infrastructure network system developed to serve district scale activities and integrate district areas. Analysis of the Level of Suitability of Space Structure consists of several Program Indications including the following: (1). Strengthening the Central Plan – Settlement Center; (2). Transportation Infrastructure Systems; (3). Energy Network System Development; (4). Water Resources Development; (5). Development of Telecommunication Infrastructure Systems; (6). Development of Environmental Management Infrastructure Systems; and (7). Disaster Evacuation Network System.\

The analysis regarding the level of suitability of the spatial structure of Tanggamus Regency can be seen in the following table;

**Table 3.** Level of conformity of the spatial structure of tanggamus regency

No	Program Indication	Desired Conditions		Desired Conditions		Desired Conditions			Information
		Number of Program Indications	Number of Program Locations	Number of Program	Locations	Program (%)	Location (%)	Space Utilization (%)	
1	Consolidation of Plans for Settlement Centers	3	8	3	4	100,00	50,00	75,00	LESS QUALITY
2	Transportation Infrastructure System	1	2	1	0	0,00	0,00	0,00	NO QUALITY
3	Energy Network System Development	5	6	5	4	100,00	66,67	83,33	QUALITY
4	Water Resources Development	4	4	4	4	100,00	100,00	100,00	QUALITY
5	Development of Telecommunication Infrastructure Systems	1	1	1	1	100,00	100,00	100,00	QUALITY
6	Development of Environmental Management Infrastructure Systems	3	3	3	3	100,00	100,00	100,00	QUALITY
7	Disaster Evacuation Network System	2	2	2	2	100,00	100,00	100,00	QUALITY
CLASSIFICATION OF SUITABILITY FOR SPACE USE								79,76	LESS QUALITY

Source: 2023 Analysis Results

Based on the conclusion of the Spatial Structure Suitability Level Analysis, the space utilization assessment results were 79.76%, this value was included in the LESS QUALITY category.

### Analysis of the Level of Suitability of Spatial Patterns

The Spatial Pattern Plan is a distribution plan for spatial allocation in the district area with protection functions and cultivation functions. A protected area is a protected area that is ecologically an ecosystem located in a regency area, which provides protection for subordinate areas located in the regency area and other protected areas according to the provisions of statutory regulations, the management of which is within the authority of the regency regional government.

Cultivation areas are areas in a district that are designated with the main function of being cultivated based on the condition and potential of natural resources, human resources and artificial resources. The analysis of the level of suitability of spatial patterns consists of several program indications including the following:

**Table 4.** Level of conformity to the spatial patterns of tanggamus regency

No	Program Indication	Desired Conditions		Desired Conditions		Desired Conditions		Space Utilization (%)	information
		Number of Program Indications	Number of Program Locations	Number of Program	Locations	Program (%)	Location (%)		
1	Protected Zone Plan	10	10	10	10	100,00	100,00	100,00	QUALITY
2	Cultivation Zone Plan	22	22	16	16	72,73	72,73	72,73	LESS QUALITY
CLASSIFICATION OF SUITABILITY FOR SPACE USE								86,36	QUALITY

Source: Analysis Results, 2023

Based on the conclusion of the Spatial Pattern Suitability Level Analysis, the space utilization assessment results were 86.36%, this value is included in the QUALITY category.

#### Analysis of the Level of Suitability of Strategic Areas

Regency strategic areas are parts of the regency whose spatial planning is prioritized, because they have a very important influence on the regency's regional environment in the fields of economics, social culture, natural resources and/or high technology, and the environment. Analysis of the Level of Suitability of Strategic Areas consists of several program indications from Strategic Areas in terms of Economic Growth Interest, including the following: (1). Minapolitan Strategic Area; (2). Tourism Strategic Area; and (3). Strategic Area for Utilization of Natural Resources and High Technology.

The analysis regarding the level of suitability of the Tanggamus Regency Strategic Area can be seen in the following table:

**Table 5.** Level of suitability for the strategic area of tanggamus regency

No	Program Indication	Desired Conditions		Desired Conditions		Desired Conditions		Space Utilization (%)	information
		Number of Program Indications	Number of Program Locations	Number of Program	Locations	Program (%)	Location (%)		
1	Protected Zone Plan	10	10	10	10	100,00	100,00	100,00	QUALITY
2	Cultivation Zone Plan	22	22	16	16	72,73	72,73	72,73	LESS QUALITY
CLASSIFICATION OF SUITABILITY FOR SPACE USE								86,36	QUALITY

Source: Analysis Results, 2023

Based on the conclusion of the Spatial Pattern Conformity Level Analysis, the results of the space utilization assessment are 100.00%, this value is included in the QUALITY category.

#### 4. CONCLUSION

Monitoring and evaluating space utilization functions to monitor existing space utilization in an area and determine the level of effectiveness of space utilization and evaluate utilization activities that have been carried out. This monitoring and evaluation must be carried out regularly so that time series data on suitability of space use can be obtained each year, so that the level of suitability of space use can be known, both changes and trends.

Conclusions in Monitoring and Evaluation of Space Utilization in Tanggamus Regency are as follows: (1). Based on the conclusion of the Spatial Structure Suitability Level Analysis, the space utilization assessment results were 79.76%, this value was included in the LESS QUALITY

category; (2). Based on the conclusion of the Spatial Pattern Suitability Level Analysis, the space utilization assessment results were 86.36%, this value is included in the QUALITY category; and (3). Based on the conclusion of the Spatial Pattern Conformity Level Analysis, the results of the space utilization assessment are 100.00%, this value is included in the QUALITY category.

So it can be concluded that the Monitoring and Evaluation of Space Utilization in 2023 has a value of 88.71%, this value is included in the QUALITY category.

It is certainly hoped that this research will provide benefits to the development of science both theoretically and practically, especially in the field of regional and city spatial planning.

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