

Application of Geographic Information System for The Forest in The District Zonation Tasikmalaya (1)

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APPLICATION OF GEOGRAPHIC INFORMATION SYSTEM FOR THE FOREST IN THE DISTRICT ZONATION TASIKMALAYA

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ABSTRACT

In order to manage the forest area to fit the capabilities it requires the availability of accurate data, both spatial and numerical data. One way of data processing can utilize Geographic Information System application. The main target of the application of Geographic Information Systems for forest zoning district is a recommendation Tasikmalaya policy determination of land use on regional zoning.

The study was conducted by quantitative methods using Geographic Information Systems. Description of forest zoning uses some data and maps include topographic maps, soil maps, rainfall data and as a determinant of the ability of land through intercropping techniques stacking (overlay) zoning analysis to produce the map. Further maps converted and corrected by entering the data contained in the maps in the overlay.

The results illustrate that the status of forests in Tasikmalaya district consists of: a limited production forest 57.41%, 35.84% protected forest; production forest 6.70% and 0.05% of forest conservation. Spatial model of forest status is something that is interesting and important to study as an input to decision makers in the spatial plan for the forestry sector or sectors that utilize the space. Space planning with the use of inaccurate spatial model will cause all sorts of problems in using the space and control space utilization. Spatial planning and natural resource management should do more synergistically to achieve sustainable development that takes into account the principles of sustainable, optimal, harmony and balance.

CHAPTER I PREFACE

A. INTRODUCTION

One of the natural resources currently receiving close attention from various parties is forest and land resources. These two resources are like two sides of a coin which form an inseparable whole. Therefore, "correct" management will have broad and long-term impacts, and vice versa, errors in forest management can lead to land degradation, even broad, social, economic, and even political impacts. Improper, unfair and uncoordinated land use allocation policies can cause problems.

Forest and forestry are one of the most important spatial uses given that nearly 70% of Indonesia's land area is designated as forest areas. The unclear authority of districts / cities in regulating spatial planning and changing forest areas creates a complex problem. Legally, changes to forest areas remain under the authority of the Minister of Forestry, but in reality on the ground, district / city governments and even communities and businessmen have converted forest areas for other purposes. Another problem is the lack of clarity on ownership and / or control rights over land area, which results in overlapping interests on the same land area.

Forest is one of the priceless natural resources and has various functions / benefits, both economically, ecologically and aesthetically, which is utilized maximally for the prosperity of the people and is one of the basic assets for development. Therefore, it is not surprising that forest destruction in all regions / countries causes concern from all parties in this hemisphere. Aesthetically, the forest is a very amazing natural beauty. Along the way, the forest experiences many disturbances, either natural disasters or man-made. Moreover, at this time human intervention is increasing and even unstoppable, so that most of the damage to forests is caused by human factors themselves.

The rate of deforestation that occurred in Indonesia during the last 12 years has increased very rapidly, data according to the World Bank (2001) there has been a reduction

in forest area by 20 million ha of forest area, or an average of 1.7 million ha / year . The main causes of deforestation (in this case defined as the permanent reduction of forest cover) can be categorized into three, namely: large-scale conversion to Industrial Plantation Forests or Plantation, conversion by communities, and uncontrolled illegal logging (World Bank, 2001)

Deforestation is one of the triggers for forest and land fires in Indonesia, especially conversion to Industrial Plantation Forests and Plantation. Community forestry policy as a solution to the problem of forest encroachment in Indonesia. Community forestry is a new paradigm in forest management where forest village communities can become partners with the government in maintaining, maintaining and utilizing forest areas in a sustainable manner. Permit for community forestry activities is regulated through Minister of Forestry Decree No.31 / Kpts-11/2001, so that there is legal certainty in terms of the rights and obligations of the community and the government in managing these forests from the perspective of local government policies in solving forest encroachment problems. There are two main policies, namely redelinating (zoning) forest areas and granting forest area management rights.

In order to manage forest areas in accordance with their capabilities , accurate data is needed, both numerical and spatial data. One way of processing the data can take advantage of the Geographical Information System application . The main target of this Geographical Information System application is for zoning forest areas in Tasikmalaya Regency which can be used as recommendations for determining land use policies for zoning areas.

B. AIM

The purpose of this research is to determine the zoning area of forest areas in Tasikmalaya Regency and to know the area and distribution.

CHAPTER II METHODOLOGY

A. RESEARCH METHODS

The research was conducted with a descriptive method. Literally intended to make a picture of a situation, condition, or event, so that it leads to collecting basic data. This method is more generally referred to as a survey method. Research was conducted to obtain facts from the existing symptoms factually (Nasir, 1988).

The study in this approach provides an overview of the situation related to the landscape (*land scape*) based on the topographic map of the area to determine the natural boundaries of a recharge area , rock distribution based on geological maps and vegetation distribution (land cover)

B. MATERIAL AND TOOLS

The materials used in determining forest zoning areas are to use several maps of the distribution of resources in Tasikmalaya Regency which consists of:

1. Map of administration
2. Map of topographic maps
3. Map of soil types
4. Rainfall map

Through a map overlay for each of the factors above, land units will be obtained according to the classification and score values from the results of processing topographic maps, soil maps, and rain data. The determination of the function of the area is carried out by adding up the scores of the three factors assessed for each land unit. The value of the total score is the value of the land capability score for each land unit.

The tools used in this study consisted of software and hardware for spatial analysis of forest areas in Tasikmalaya Regency. The software used consists of Arcview GIS 3.3 and Ms. Word and Ms. Excel for data processing. The hardware used is a digitizer, keyboard, CPU, printer and plotter. Other media are thematic analog maps of Tasikmalaya Regency which are related to forest area analysis.

C. DATA ANALYSIS TECHNIQUE

Primary data analysis is spatial analysis using GIS software (Geographical Information System) and computer hardware. The spatial analysis carried out includes the development of a thematic topological analysis of forest areas, *overlaying* or *superimposed* (overlapping) input themes to obtain forest zoning.

Operation slices (*boundary intersection*) and combined operations (*union*) themes that overlap and drafting (*sorting*) of attribute data based on administrative boundaries, graphic data and attributes for the spatial analysis of forest area zoning.

Output manipulation to obtain forest zoning for the Kepmenhut SK 79/2001 is to *overlay* the rainfall data class, slope data class and soil erosion data class . The results of the spatial analysis for forest zone zoning Kepmenhut SK 79/2001 are three zones, namely: protected forest zone (the sum of the interval values is the smallest), limited production forest (the sum of the interval values is the middle value) and production forest (the sum of the values interval is greatest).

The approach taken is basically a descriptive analysis by making efforts to describe the zoning of forest areas using some data and maps using the GIS (Geographical Information System) application with overlapping techniques (*over lay*) so as to produce a zoning analysis map of forest zoning , can be seen in the following diagram

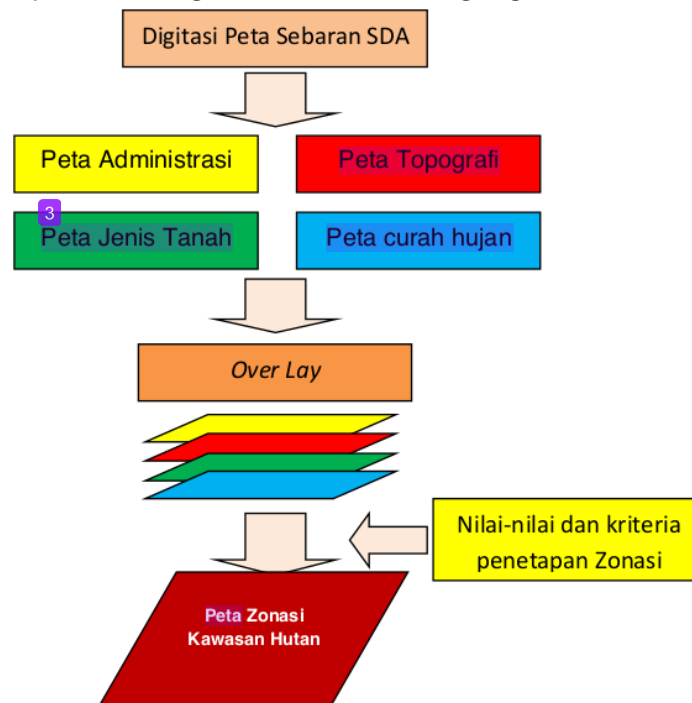
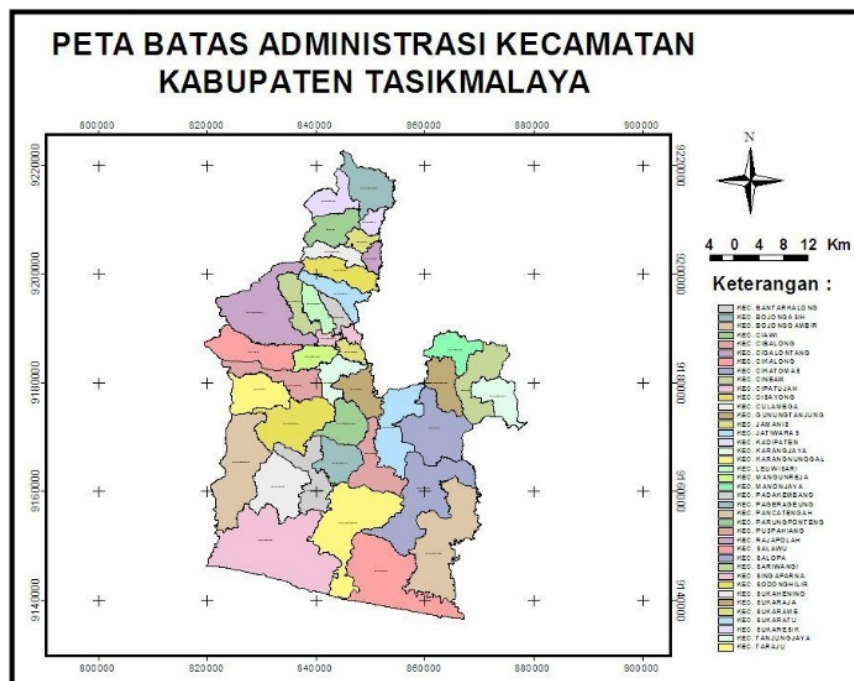
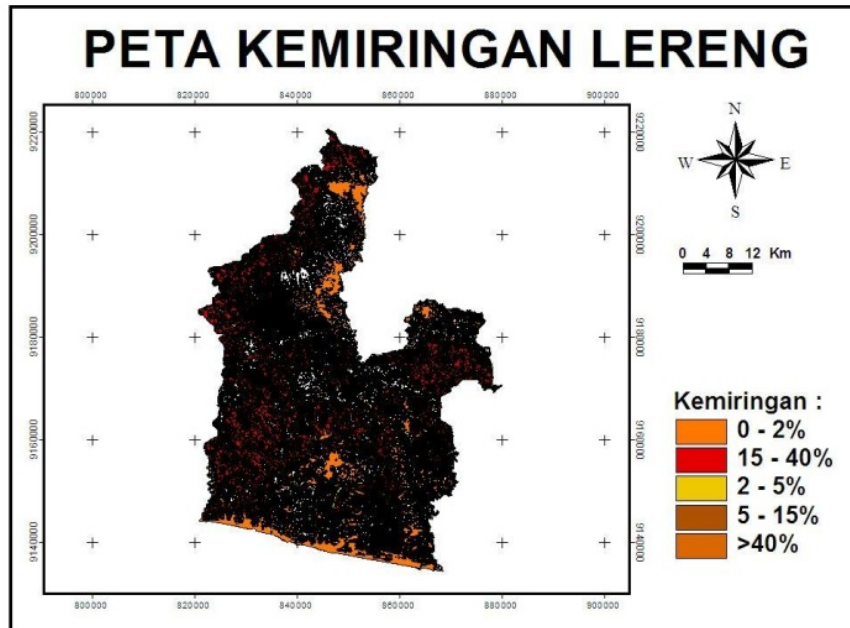


Diagram 1 : Work step of mapping forest zoning

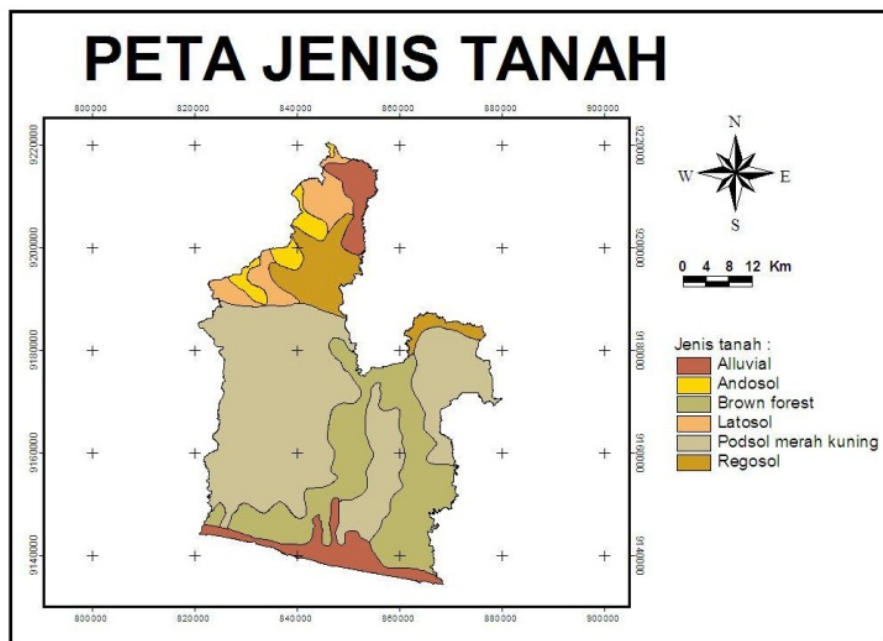
Analyzes of maps that have different map scales can be projected to a larger scale by adding information to the map. Further map converted and corrected by entering in the maps that do overlay.



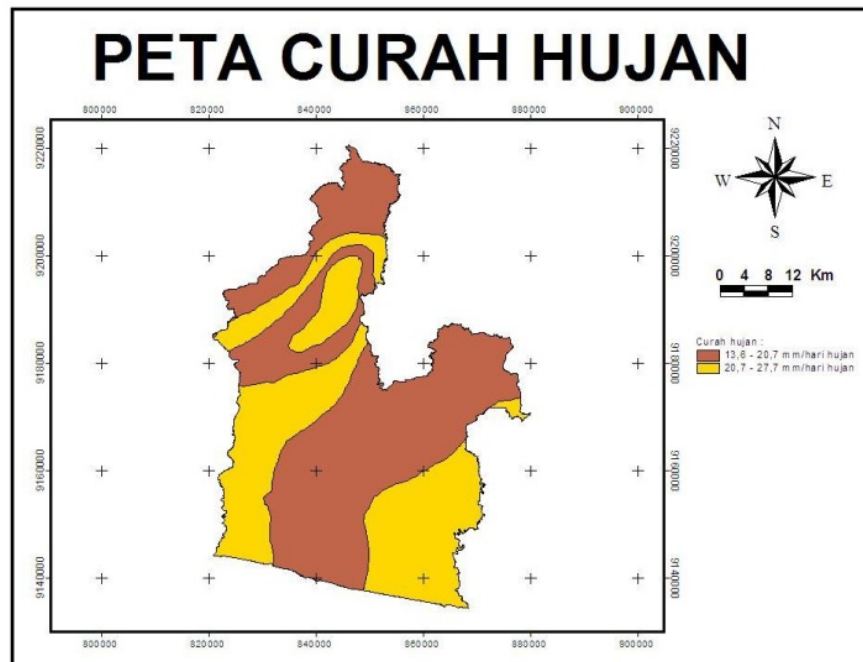
2. Topographic Map



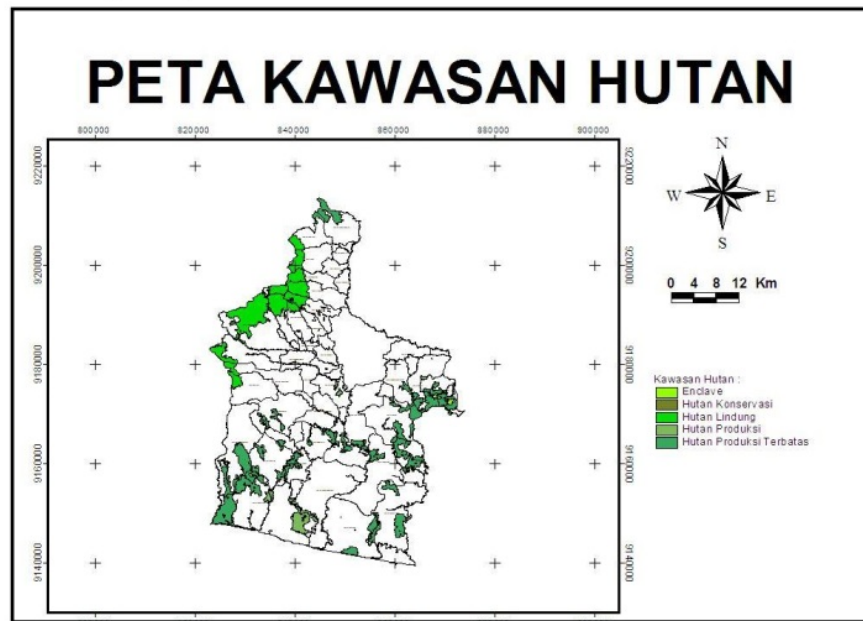
3. Map of Soil Types



4. Rainfall Map



5. Forest Region Map



C. ZONING ANALYSIS

The results illustrate that the forest's status in Tasikmalaya Regency consists of:

- Protection forest : 35.84%;
- Conservation forest : 0.05%.
- Production forest : 6.70%; and
- Limited production forest : 57.41%;

Based on the analysis on the slope class map, soil map, and rainfall map where the results are:

- There are four combinations of topographic factors, namely flat, sloping, slightly steep, and steep grades
- For soil types there are 2 combinations, namely insensitive and somewhat sensitive
- Meanwhile, rainfall has two combinations, namely, low and moderate rainfall classes

The scoring value based on the summation for each factor can be determined by the following classification:

Value of forest function:

- <95 permanent production forest
- 95 - 125 limited production forest
- 125 protected forest

Based on the scoring value, the forests in Tasikmalaya Regency are included in the categories of Protection Forest, Conservation Forest, and Production Forest. Because the scoring value in the designation of area functions is only based on the slope class, soil type and rainfall factor so that if it is determined in the field conditions it is no longer appropriate because at that location there are many activities, including residential development, industrial development and open land clearing such as : open land, fields and moor, so it needs to arrange the zoning adjustment or prop region.

CHAPTER IV CONCLUSION

This spatial model of forest status is something interesting and important to study as input for decision makers in spatial planning for the forestry sector as well as sectors that use space.

Spatial planning using inaccurate spatial models will cause various problems in spatial utilization and spatial use control. Spatial planning and management of natural resources (forests) must be carried out more synergistically to achieve sustainable development that considers sustainable, optimal, aligned and balanced.

REFERENCES

- 2 Dimiyati, RM dan Dimiyati M, 1998. *Remote Sensing dan Sistem Informasi Geografis untuk Perencanaan*, Cetakan Pertama, Fakultas Teknik Universitas Muhammadiyah, Jakarta.
- 1 Lillesand, TM and RW. Kieger. 1979. *Remote Sensing and Image Interpretation*. John Willey & Sons. New York
- 1 Unggoro, D.W. 2001. *Hutan Kemasyarakatan, Prinsip, Kriteria dan Indikator*. Pustaka Latin World Bank. 2001. *Indonesia Environment and Natural Resource Management in a Time of Transition*. World Bank. Washington, USA

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