GIS Application To Detect The Potential For Tourism Geology And Forest In The District Berau, East Kalimantan

by Anik Vega

GEOGRAPHIC INFORMATION SYSTEM (GIS) APPLICATION TO DETECT THE POTENTIAL FOR TOURISM GEOLOGY AND FOREST IN THE DISTRICT BERAU, EAST KALIMANTAN

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GEOGRAPHIC INFORMATION SYSTEM (GIS) APPLICATION TO DETECT THE POTENTIAL FOR TOURISM GEOLOGY AND FOREST IN THE DISTRICT
BERAU, EAST KALIMANTAN

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Abstract. Geographic Information Systems (GIS) in the form of an application to determine the location of potential Webmap Tourism Geology and Forest in Berau, East Kalimantan. This mapping system is used to display the information fields that have a potential for Geology and Forest Scenic Area. Given this Webmap expected to assist in determining the Tourism Department of Tourism suitable land based on the parameters of Geology and Forest. The method used in this study using Scoring by processing the attribute data based on the criteria that have been determined, so that the preparation of this system is based on a reference and guide Local Government. Based on precision and recall every level of coal reserves, the average value obtained precision was 97%, the average value is 70% recall. The average value of accuracy, ability, and success of this system is more than 50% based on the calculation precision, recall, and accuracy.

Keywords: GIS; Webmap; Tourism Geology and Forest

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I.   INTRODUCTION

Coal sedimentary organic remains of plants that occur over several hundred million years ago. Berau regency precisely in East Kalimantan is an area that has the potential of mineral especially quarrying Coal mine to reliable, in 2015 where the district located in Berau, East Kalimantan, there are several types of coal, such as the type of Anthracite coal there are areas of the sub-district of Tanjung Redeb, Teluk Bayur, Powder Mountain, Sambaliung, and Talisayan. And for this kind of sub-bituminous coal districts, there are areas of Cape Redeb, Teluk Bayur, Kelay, satiated, Powder Mountain, Sambaliung, Tabalar, Biatan, and Talisayan. As for the type of coal Lignite districts, there are areas of Cape Redeb, Teluk Bayur, Kelay, satiated, Powder Mountain, Sambaliung, the Bear-Bear, Tabalar, Biatan, Talisayan, Biduk-dipper, Batu Putih, and Sambaliung. But not all regions have the potential excavation coal mines [1]. Because of the absence of applications that can help in the fields of coal, as well as a lack of knowledge and information services to the public will be any parameter that supports the existence of land that could potentially be used as a coal mine. In addition to mining, the potential of Geology and Forest in Berau, East Kalimantan, can be used as Tourism Geology and Forests will be very useful for people, especially tourists, as well as the impact on increasing regional revenue. GIS has the ability to map and analyze spatial data with spatial analysis (spatial analysis) and analysis time (temporal analysis), generating an integrated analysis covering all aspects [2]. Geoprocessing on Web map application in this study using a Scoring method to determine the value of the weight and value of the priority of each criterion for the next calculation process with a Scoring method. The purpose of this study to determine the location of coal mining in the district of Berau.

And to determine the potential of coal land in areas with coal based on the parameters of Geology and Forest. The benefits of this research to help the Department of Tourism in determining the coal mining areas that have the potential based on the parameters of Geology and Forest

II.   METHODS

The scoring method is a method of giving a score or value to each parameter value to determine the level of ability. Scoring or scoring is done to give the effect of a trait of the parameters used in the analysis of a forecast occurrence. While the weighting method also called weighting is a method used when each character has a different role or if you have multiple parameters to determine the ability of the land or the like [3,4]. Data analysis used for geoprocessing. Weighting is a decision-making technique in a process that involves a variety of factors together by assigning weights to each factor. The potential value of an area of the coal is determined from the total sum score of two parameters which affect the potential of coal (Geology and Forest). The results from the multiplication scores and the weights are summed in each parameter, which produces the sum by the total yield maximum and minimum. Analysis of coal reserves is divided into three classes which are very promising, potentially less, and no potential. From the analysis of these parameters can be value in the minimum and maximum values. Then process based on the minimum and maximum values, are divided into several classes.

III.   RESULTS AND DISCUSSION

From the analysis results on the above map view can know which region has the potential of coal and which areas are potentially less coal, as shown in the following figure,
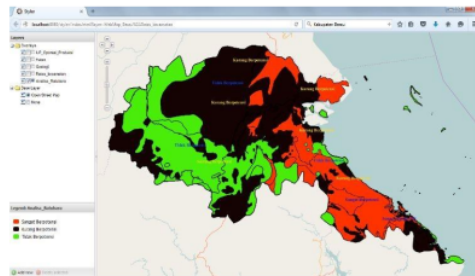

Figure 1. Potential of Regional Geology and Forest

Where:
- The red color, which is a region very potential.
- The black color which is potentially less territory.
- The green color which is a region that has no potential.

Trials to analyze potential areas of coal in the district Sambaliung. The parameters used to produce this analysis of geology and forest. This analysis is done by calculating the value of each class in each - each parameter in each district. The following system will analyze locations around the district area Sambaliung. In the "Analysis of Coal" There have been a variety of grades from the analysis of all parameters, the following picture following images display the results of the analysis of coal layer.
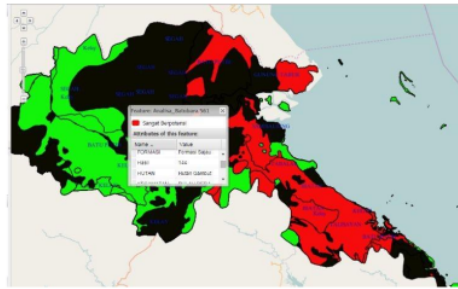

Figure 2. Results of analysis of the potential of Tourism Geological & Forest districts Sambaliung

Image above explains that the data is the data that appears click on the region in the area Sambaliung districts. The data shows 144 results, where this amount includes classes are worth 1, ie, the class which means the area potentially serves as a land of coal mines in the formula (1) and (2). This value is classified in Table 6 where districts have Sambaliung an area that is potentially coal with a score layer as shown in the following figure,
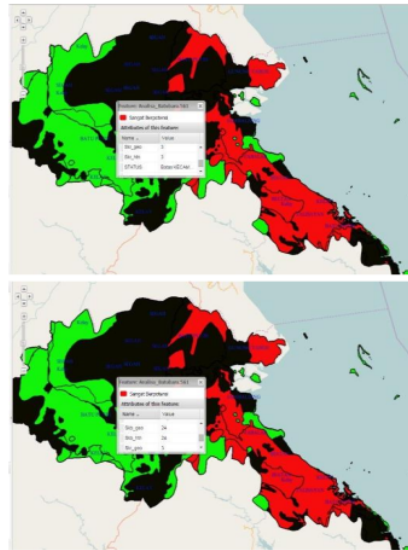

Figure 3. Parameters Score Geology and Forest

In The image above is a score in the districts Sambaliung which has a score of 3 and a score forest geology 3. weight districts Sambaliung which has a weight of 24 and a weight geology forest 24.

IV. CONCLUSION

web-GIS applications with geoprocessing layer with the Scoring method can be an alternative to facilitate the Department of Tourism in determining the potential of Geology and forest

Tourism in the district of Berau in East Kalimantan. The results of the tests conducted, the average value obtained accuracy, ability, and success of this system is more than 50% based on the calculation precision, recall, and accuracy.

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