Landscape-Lifescape Analysis in Forest Protection and Safety on Various of Forest Functions in Minraleng Watershed of Maros Regency, South Sulawesi

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Abstract

The study was conducted in upstream area of Minraleng Watershed. This study aims to determine the carrying capacity of landscape and lifescape in order to suppor protection and security of various functions of forest areas. The method used is PAR approach with discriminant analysis. The result of the research shows that carrying capacity of landscape in order to support the protection and security in various functions of forest area can be seen with discriminant equation $D = -1,86 + 6,25X11 + 6,15X12 + 6.24X13 + 5.81X14 + 6.25X15 - 0.062X16 + 0.16X17$. Based on the equation it can be seen that each variable of the landscape has a significant impact on the protection and protection of forests in various functions of forest areas. The most influential variables are topography, climate and land cover. Based on the results of discriminant analysis, we obtain the equation of lifescpae equation analysis $D = -3,69 + 6,25X_{21}$. Which means the lifescape support capacity (life) in supporting the protection and protection of forests in various functions of forest areas is influenced by a single factor of livelihood strategy. Based on lifescape and landscape analysis approach should refer to some variables that support the sustainability of forest protection.

Keywords: Landscape, Lifescape, Forest Protection, Forest Function

1. Introduction

Until the year 2013 natural forest cover only 82 million hectares or about 46% and the land area of Indonesia and 62.6% of the total forest area. The total cover of each island's natural forests until 2013, 29.4 million ha in sequence, Kalimantan 26.6 million ha, Sumatra 11.4 million ha, Sulawesi 8.9 million ha, Maluku 4.3 million ha, Bah And Nusa Tenggara 1.1 million ha, and Java only 675 thousand ha (IPCC,2001). Based on FWI analysis, there is a correlation between forest cover loss and low governance index owned by a district. The study results in 5 (five) districts, the lowest indexed districts, have the highest deforestation rates compared to others. This weakness has an impact on the growing fertility abuse by the local government in the process of land clearance, granting of private business permits and conversion of natural forests that are not in accordance with the prevailing rules. The problem of deforestation and forest degradation is closely related to forest protection and protection. Law No. 5 of 1997 juncto government regulation number 28 year 1985 became the foundation of forest security. Forest security includes a forest protection system to keep forests sustainable and fulfill their functions. Legal protection fulfills its function. Forest protection covers efforts to prevent and limit forest destruction caused by human and cattle (beheading), natural resources, pests and diseases. Furthermore, maintaining and protecting the state's rights to forest and forest products against illegal logging, shifting cultivation and shifting cultivation (Yusran, 2012). From the above regulations, it is concluded that forest protection and protection is caused by physical, biological and socio-economic factors.

One approach method that can be done to reduce deforestation and forest degradation in forest protection and protection in the various functions of forest areas in the watershed is to conduct landscape-lifescape analysis, ie a participatory assessment of a landscape and how humans and living things in it interact with each other. This analysis aims to understand how social structures and contexts influence the livelihoods of communities, the interaction of stakeholders of natural resource users, and the potential to manage them well within a particular landscape. It requires the use of landscape-lifescape analysis so that the development implementation can be aligned with the landscape and the people living therein. Therefore, it is necessary to conduct a research on landscape-lifescape analysis of forest protection and security in various fungi of forest area in sub Upper Minraleng watershed Maros regency, South Sulawesi.

2. Methods

This research type is descriptive and explanative research, in approach of qualitative and quantitative research, using Participatory Rural Appraisal research method. The PRA approach or method allows villagers to share, improve, and analyze their knowledge of village conditions and life, and make real plans and actions (Rochdyanto, 2000). In essence PRA is a group of approaches that allow rural communities to share, to improve and analyze their knowledge of village conditions and life, as well as to create real plans and actions. Some basic

principles that must be met in the PRA method include mutual learning and experience sharing, involvement of all group members and information, outsiders as facilitators, the concept of triangulation, and the optimization of results, practical orientation and program sustainability.

This research was conducted in Minralaeng Watershed Area of Maros Regency of South Sulawesi Province by taking samples at various functions of forest area consisting of protected forest, conservation forest, permanent production forest and limited production forest.
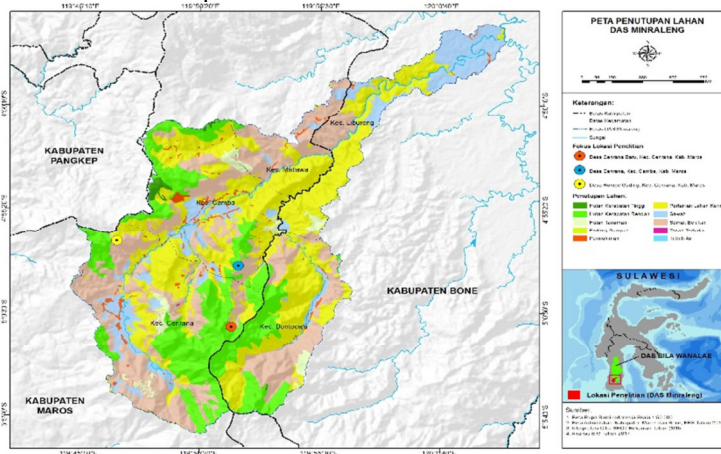

Figure 1. Land Cover Map of Minraleng Watershed

The instrument used in this research is a closed questionnaire (questionnaire) and semi-open questionnaire. Closed communications are used to facilitate the processing of data obtained. While semi-open questionnaire is used in addition to facilitate the processing of data, also so that respondents can provide responses in accordance with the will and the actual circumstances. The questionnaire contains information on the location of observation, land cover conditions (vegetation type), socioeconomic conditions of the community (livelihood), community institutions, community contributions in forest protection and protection activities. Data type used in this research is primary data and secondary data. Primary data were obtained through field surveys, in-depth interviews, questionnaires on communities at research sites and stakeholders in forest management to determine strategic factors in sustainable community forest management. Secondary data is obtained through literature studies and reports or documents from various agencies related to the research topic.

In this research, data collection method is done through the following stages:

1. Interviews were conducted using In Depth Interview techniques with key figures, such as communities around the forest, community leaders, local NGOs and related
2. Conduct Focus Variable Discussion from each stakeholder group (community, NGO and government) to identify strategic factors in forest protection and protection activities
3. Field survey in the form of observation to collect primary data with in depth interview technique (depth interview) and questionnaire distribution to respondent
4. Data collection with questionnaire (questionnaire) will be done to obtain information directly from all parties. Respondents in this study consisted of the community around the forest with the number of respondents 98 people who live in various functions of forest areas in Maras Sub Minas Sub-District. Other respondents include government officials such as Forestry and Estate Crops, BPDAS Walanae, BPKH Region VII, BP4K and BPS and community groups such as NGOs, universities and indigenous peoples. The representation of each element is an input to be processed into a source of information.

The data collected in this study were analyzed with Discriminant Analysis. This grouping is mutually exclusive, in the sense that if object A has entered group 1, then it is not possible to be a member of group 2. The analysis can then be developed on any variable that makes group 1 different from group 2, what percentage goes to the group 1, what percentage goes to group 2. Since there are some independent variables, there will be one dependent variable, discriminant analysis characteristic is data type of dependent variable of type (category), like code 0 and 1 , or codes 1, 2 and 3 and other combinations (Gerson, 2004). To simplify the calculation process, then use the tool by using SPSS for Windows Version 22. The basic model of discriminant analysis resembles multiple regression. The difference is that if the dependent variable of multiple regression is denoted by Y, the discriminant analysis is denoted by D The discriminant analysis model is an equation which shows a linear combination of various independent variables:

$$D = b_0 + b_1X + b_2X_2 + b_3X_3 +...+ b_kX_k \qquad (1)$$

Where, D repectively denote discriminant score, B is coefficient, and X is the predictor or independent variable. The validation test of the findings in this study was conducted in two stages, namely testing the validity of discriminant analysis results and rejection purpose.

The validity test is to know the level of validity of the instrument (questionnaire) used in data collection. This validity test is conducted to find out whether the items presented in the questionnaire are really able to reveal with certainty what will be examined. According to Ghozali (2000): "The way used is by Item analysis, where each value in each item is correlated with the total value of all questions for a variable using the product moment correlation formula". The minimum requirement to be considered valid is the value of r>> from r table value. R table at α = 5% (0.05) with degrees of freedom df = number of cases - 2. In this study, the number of cases is 11, so df is 9, r table (0.05; 9) is 0.3802.

To test the validity of the measuring instrument, first searched the correlation price between the parts of the measuring instrument as a whole by correlating each item of the measuring instrument with the total score which is the sum of each score of Pearson Product Moment as follows:

$$r = \frac{n\sum_{1=1}^{n} XiYi - \sum_{i=1}^{n} Xi.\sum_{i=1}^{n} Yi}{(n\sum_{1=1}^{n} Xi^2 - \sum_{i=1}^{n} Xi^2).(n\sum_{i=1}^{n} Yi^2 - \sum_{i=1}^{n} Yi^2)} \quad (2)$$

If the instrument is valid then the interpretation criteria of its correlation index (r) as follows:

Between 0.800 up to 1,000: very high; between 0.600 to 0.799: high; between 0.400 to 0.599: high enough; between .200 to 0.399: low; between 0, 00 to 0.199: very low (invalid). While reliability test is intended to determine the consistency of measuring instruments in its use, or in other words the measuring tool has consistent results when used many times at different times. According to Santoso, et al (2001): "For reliability test used Cronbach Alpha Technique, where an instrument can be said reliable (reliabel) if it has a coefficient of reliability or alpha of 0.6 or more.

3. Conclusion

The carrying capacity of the landscape in supporting the protection and security of the various functions of the forest area in the Minraleng sub-waters of Maros regency of South Sulawesi Province can be seen with the discriminant equation $D = -1,86 + 6,25X_{11} + 6,15X_{12} + 6, 24X_{13} + 5.81X_{14} + 6.25X_{15} - 0.062X_{16} + 0.16X_{17}$. Based on the equation it can be seen that each variable of the landscape has a significant impact on the protection and protection of forests in various functions of forest areas. The most influential variables are topography, climate and land cover. Based on the results of discriminant analysis obtained information function equation analysis of lifescpae $D = -3.69 + 6.25X_{21}$. Which means the lifescape support capacity (life) in supporting the protection and protection of forests in various functions of forest areas in the Minraleng sub watershed is influenced by a single factor of livelihood strategy. Forest protection and protection system at various functions of forest area in Sub-watershed Minraleng District. Maros South Sulawesi Province based on lifescape and landscape analysis approach should refer to some variables that support the sustainability of forest protection and protection. It is suggested that the object of research is directed to government and private institutions with a view to understand more deeply how landscape and lifescpae influence on the sustainability of forest protection and protection. A review of the variable relationships that are neither significant nor in tension with previous research should be reviewed. The goal is to better understand in depth theories related to landscape and lifescape and should be used other indicators to form the variable landscape and lifescape.

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