

FACTORS INFLUENCING FOREST ENCROACHMENT IN PTVI AREA AND ITS ECONOMIC IMPACT

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Abstract

Background - Forest encroachment refers to the process of reducing forest area due to human activities, such as logging, agricultural land clearing, mining, and infrastructure development. This phenomenon is of global concern as it has serious impacts on the environment, biodiversity and climate.

Objective - The purpose of this study was to determine the impact of forest encroachment and determine the factors that cause forest encroachment in the Sorowako Block Area, East Luwu Regency, South Sulawesi where PTVI is located.

Design/methodology/approach - The research method used in this article is qualitative method and descriptive analysis technique.

Findings - The results of this study concluded that the factors influencing forest encroachment are the lack of certainty of the tenure system, the high economic value of land use by non-companies, the weak supervision system of the contract of work, not optimal law enforcement efforts and the weak dispute resolution mechanism in the PTVI system. Economic factors in the surrounding environment are the main factors influencing forest encroachment.

Research implication - It is important for companies to integrate environmental considerations in business decision-making in order to achieve long-term sustainability and avoid the negative economic impacts of forest encroachment.

Limitations of Research - Analyses may be limited to a particular region or country, so the results may not be directly applicable elsewhere.

Keywords : Analysis, Impact, Economic Factors, Encroachment, SDGs

1. INTRODUCTION

Forest encroachment refers to the process of reducing forest area due to human activities, such as logging, agricultural land clearing, mining, and infrastructure development. This phenomenon is of global concern as it has serious impacts on the environment, biodiversity and climate (Kumar et al, 2022; Nurrochmat, 2019; Jibril et al, 2021).

Forests play an important role in maintaining ecosystem balance and providing a range of ecosystem services, including carbon storage, climate regulation, and habitat for a variety of species. However, forest encroachment can lead to biodiversity loss, soil degradation and greenhouse gas emissions due to the release of carbon stored in forest trees and soils (Sharma et al, 2020; Naing Tun et al, 2021; Devi & Shimrah, 2022).

Some of the factors that lead to forest encroachment include human population growth, increased demand for timber and forest products, agricultural expansion, and unsustainable development policies. Efforts to address forest encroachment involve conservation policies, sustainable forest management, land rehabilitation, as well as approaches that involve the

participation of local communities and the protection of the rights of indigenous tribes (Appiah et al, 2021; Himshikha, 2022).

Global awareness of the importance of forest conservation is increasing, and many organisations, governments and communities are committed to protecting and sustainably managing forests. These measures are expected to maintain the sustainability of forest ecosystems, support wildlife, and mitigate the impacts of climate change.

2. RESEARCH METHODS

According to Nana (2013; 94) qualitative research methods are research aimed at describing and analysing phenomena, events, social activities, attitudes, beliefs, perceptions of individual and group thoughts. Qualitative research methods are also often called naturalistic research methods because the research is conducted in natural conditions. Qualitative research is conducted on natural objects that develop as they are, not manipulated by researchers and the presence of researchers does not really affect the dynamics of these objects.

Sugiyono (2016), the definition of primary data according to Sugiyono is data that is directly obtained from the source and given to data collectors or researchers. There is also an opinion according to Sugiyono, primary data sources are interviews with research subjects either by observation or direct observation. The implementation of the research consisted of an initial survey aimed at knowing the general condition of the Sorowako Block Area, East Luwu Regency, South Sulawesi where PTVI is located and interviews with the community in the Sorowako Block Area, East Luwu Regency, South Sulawesi where PTVI is located regarding forest encroachment and data collection in the field through direct observation in the field for economic factors of forest encroachment. Observations made in the field are factors of forest encroachment and socio-economic conditions and community behaviour regarding forest encroachment.

The research location is in the Sorowako Block Area, East Luwu Regency, South Sulawesi where PTVI is located. The research was conducted from November 2021 to January 2022. The equipment used in this research are stationery (to write down observations in the field), camera (to document all activities in the field) and questionnaires (to find out suggestions and input from the community around the Sorowoko Block area). The research object observed was the economic factors of forest encroachment in the Sorowako Block Area, East Luwu Regency, South Sulawesi, where PTVI is located.

1.1 Descriptive Analysis

According to Sugiyono (2017: 147) "data analysis is the process of systematically searching for and compiling data obtained from interviews, field notes, and documentation, by organising data into categories, breaking it down into units, synthesising, compiling into patterns, choosing which ones are important and which ones will be studied, and making conclusions so that they are easy to understand by yourself and others. And provide interview questions regarding what factors influence forest encroachment.

3. RESULTS AND DISCUSSION

3.1. Research Results

Factors that influence the occurrence of forest encroachment

The results in the field show that there are factors that influence and underlie the existence of forest encroachment activities as follows:

1. the absence of certainty of the tenure system
2. high economic value of land use by non-companies
3. weak contract of work monitoring system
4. law enforcement efforts have not been optimal and
5. the weak dispute resolution mechanism in the PTVI system.

Based on the main findings experienced by PTVI, an important issue is that land use by non-company parties occurs :

1. **MASSIVE** occurs in very wide distribution and relatively large numbers.
2. **INTENSIVE** ongoing and the most important part of the household economy.
3. **HISTORICAL** has been ongoing since the beginning of mining activities in the area, in the second half of the 1960s.

The main factor underlying forest encroachment is the high economic value of land use by non-companies.

The following is data on income sources from the use of forest encroachment:

Table 1. Data On Income Sources From The Use Of Forest Encroachment

Income Amount	Percentage Scale (%)
< 5 million	14%
5-9 million	7%
20-39 million	22%
40-69 million	11%
>70 million	46%

Source: data processed by PTVI (2021)

Based on the table above 21% or 189 respondents have annual income below 10 million or below the East Luwu MSE (3.2 million) Pomalaa MSE (4.2 million) and Morowali MSE (2.8 million). And here are some income classifications from various fields:

Table 2. Income Classifications From Various Fields

Income Statement	Percentage Scale (%)
Income from on farm	1%
Income from off farm	2%
Income from HH land	40%
Income from non-HH land	57%

The table shows that there is a comparison of income from land in the Contract of Work with others. Therefore, the economic factor is the key factor in forest encroachment.

The following is a breakdown of income sources from various On Farm Sources, Off Farm Sources and Non farm sources.

1. The following are the categories of On Farm Sources of income:

Table 3. Categories Of On Farm Sources Of Income

Description	Percentage Scale (%)
Merica	95 %
Rice	2,3 %
Cloves	5,2 %
Nilam	5,2 %
Palm	0,6 %
Chillies	0,6 %
Jengkol	0,3 %
Milkfish	0,2 %
Durian	0,1 %
Cocoa	0,1 %

Source: data processed by PTVI (2021)

Based on the table above, the highest income by utilising the contract of work land with peppercultivation because of the very economic value and very high income is considered by the forest encroacher community.

2. The following are the categories of Off Farm Sources of income:

Table 4. Categories Of Off Farm Sources Of Income

Description	Percentage Scale (%)
Profit sharing	25 %
Middlemen	22 %
Harvestlabourer	14 %
Land labourers	9 %
Wood labourer	7 %
Transport Labourer	6 %
Patchoulilabourer	5 %
Fertiliserlabourer	0,2 %
Durian	3 %
Rice fieldlabourer	2 %

Source: data processed by PTVI (2021)

Based on the table above, the highest income by utilising the work contract land by way of profit sharing because many migrants come to bring all the capital to become economic value and veryhigh income, therefore the majority of the community cooperates with the profit sharing system.

3. The following are the categories of Non Farm Sources of income:

Table 5. Categories Of Non Farm Sources Of Income

Description	Percentage Scale (%)
Kiosk stall	36 %
Salary	27 %
Employee Wages	13 %
Day labourer	8 %
Driver	7 %
Contractor	2 %
Builders	2 %
Other businesses	2 %
Submission	1 %
BLT/ Assistance	2 %

Source: data processed by PTVI (2021)

Based on the table above, the highest income with the classification of Non Farm sources, the majority of people get income from the kiosk sector at 36% compared to other non-farm income sources.

Tackling Forest Encroachment and the Efforts Made by the Government of Sorowako Subdistrict, East Luwu Regency

The deforestation is not only caused by irresponsible people clearing forests to make gardens and other agricultural crops, but also due to the high activity of illegal logging activities in a number of locations in this area. As a result, the area of forest damage in Sorowako District, East Luwu Regency, has increased from year to year.

Various problems of forest encroachment and timber theft can be addressed through policies such as conducting an inventory of forest encroachment to obtain accurate data on the number of forest encroachments and the area of forest encroached. To reduce forest encroachment, it can be done by providing understanding so that encroachers are willing to leave the encroachment location and not return to encroach on the forest.

In addition, guidance was provided to the community to avoid re-encroachment on the forest area. This is done through village development counselling, community forest development (forest socialisation) rehabilitation and conservation.

In the Corporate Social Responsibility Programme provided by PTVI to save forest areas from encroachment activities by the community, through coordination with agencies and related parties, efforts have been made in the form of evicting encroachers out of forest areas, as well as prosecuting encroachment through legal processes.

3.2. Discussion

The analysis and economic impact of factors influencing forest encroachment is a very important topic in the context of environmental sustainability and economic development. Forest encroachment, or deforestation, can be defined as the reduction of forest area due to human activities such as logging, cultivation, and urban expansion. Factors influencing forest

encroachment involve complex interactions between economic, social and environmental aspects.

1. Economic Factors:

Logging activities to fulfil industrial and construction needs can be a major cause of forest encroachment. Analyses need to be conducted to evaluate the economic impact of the forestry industry and the extent to which sustainability can be applied. Conversion of forests to agricultural land to fulfil food needs is also a significant economic factor. Analyses are needed to assess the economic impacts of agricultural production versus the sustainability of forest ecosystems.

2. Economic Impact:

Forest encroachment can result in the loss of various ecosystems and biodiversity, which can negatively impact economic sectors dependent on natural resources. Deforestation contributes to global climate change, which can have significant economic impacts through changes in extreme weather patterns and disruptions to the agricultural sector.

3. Policy and Governance:

Evaluation of forest policies, including logging regulations and forest protection, is necessary to understand the extent to which prevention efforts can be implemented. The success or failure of forest conservation efforts can also depend on good governance. Analyses of the effectiveness of forest governance and the role of the government and other stakeholders need to be conducted.

4. Solutions and Innovation:

Seeking green economy solutions, such as sustainable forest management, agroforestry and forest restoration, can have positive impacts both economically and environmentally. Involving local communities in forest management and conservation can create a sustainable economic model.

This analysis should consider the long-term impacts of forest encroachment on the global and national economy, as well as efforts to remedy and address these impacts.

Addressing economic forest encroachment requires thorough and sustained analyses to understand the relationship between policies, economic practices and environmental conservation. Holistic and sustainable solutions are needed to maintain the balance between economic development and forest conservation

4. CONCLUSION

Based on the results of research at PTVI, it can be concluded that most of the causes of forest encroachment in Sorowako Sub-district, East Luwu Regency are the absence of certainty of the right tenure system, the high economic value of land use by non-company parties, the

weak supervision system of the contract of work, law enforcement efforts are not optimal and the weak dispute resolution mechanism in the PTVI system. Economic factors in the surrounding environment are the main factors that influence forest encroachment.

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