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EVALUATION OF CONTROLS ON CV. BAREN'S IN KOYA KOSO VILLAGE THE DISTRICT ABEPURA JAYAPURA CITY PROVINCE PAPUA

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Abstract: The objective of this study is to evaluate erosion control activities in the Koya Koso mining site in Abepura District, Jayapura City, Papua Province. The research methodology used is a descriptive approach, focusing on the principles and methods of erosion control. The study aims to assess the effectiveness of erosion control measures in rehabilitating and utilizing the land damaged by mining activities conducted by CV. Barend's. The findings reveal that erosion control activities are carried out in several stages, including soil conservation, selection of land cover vegetation, pH control of the soil, and creation of planting holes. These stages are crucial in ensuring the success of erosion control efforts. The planned erosion control activities, such as hoarding and revegetation, have significant links and functions in rehabilitating and utilizing the post-mining land, covering an area of 1.9 hectares. The reclamation process involves the application of humus materials with a thickness of 2 meters. The estimated total cost for the reclamation project is RP. 15,824,000, and the expected duration for the completion of reclamation work is approximately 2 months and 15 days. n conclusion, erosion control activities play a vital role in rehabilitating and utilizing land affected by mining activities. The implementation of proper erosion control measures, such as soil conservation, vegetation selection, and pH control, is crucial in achieving successful reclamation. The planned erosion control activities, including hoarding and revegetation, demonstrate a comprehensive approach to rehabilitating the mining site. These findings provide valuable insights for mining companies and stakeholders involved in land rehabilitation efforts, emphasizing the importance of effective erosion control measures in minimizing environmental damage and promoting sustainable land use practices.

Keyword: Control; Revegetation; Financing

INTRODUCTION

Sedimentation processes include erosion, transportation, deposition and the arrangement of the sediment itself (Munandar, 2014). Starting from the rain that produces kinetic energy which is the beginning of the erosion process (Nur, 2019). Once the soil becomes fine particles, then surrounded by the flow, some will remain in the soil while others enter the drainage carried by the river to become sediment (Sumampouw, 2019). Sedimentation that occurs causes the channel to become shallow and the channel capacity is reduced so that it cannot accommodate the runoff discharge that occurs (Fitriyah et al., 2014).

Koya Koso is a village in the Abepura District, Jayapura City, Papua Province (Abrauw, 2019). (Pahri, 2017) Koya Koso District has a high level of activity in terms of the mining industry, economy, education and social affairs. This can be seen by the presence of shops, school buildings, and residential areas. This development resulted in changes in land use in hilly areas due to very rapid population growth, causing erosion and sedimentation problems in the Koya Koso sub-district.

Based on direct observations in the field in Koya Koso District, there are several problem points that need to be reviewed. During low-intensity rains, water overflows at several points in Koya Koso Subdistrict which inundates the main road due to the large amount of sediment carried by runoff from the slopes which is transported and clogs the drainage channels. Thereby reducing the drainage capacity of the canal.

The conditions that occur as described above explain the importance of studying the handling of erosion and sedimentation problems in parts of the Koya Koso District.

MATERIALS AND METHODS

Preparation

Preparation is the author's initial stage before being able to carry out research activities. The preparation carried out by the researcher consisted of several activities, namely:

1. Initial research; is an activity carried out by the author through direct observation to the place that will be made the object of research.
2. Title; This is the purchase of titles from the results of helping problems that you have obtained during the initial research.
3. Proposal for making; This is a suggestion made by the author to the supervisor to be able to conduct research with a predetermined title.
4. Making a research permit; at this stage the author has received approval from the supervisor so that he gets a research permit with a predetermined research title.
5. Preparation of tools and materials for research; is a follow-up activity carried out by the author. At this stage the author prepares all the tools and materials that can support the author's research.

Data Retrieval and Collection

1. Data primary
   a. Soil data conservation
   b. Types of land cover vegetation
   c. Soil ph control
   d. Documentation

e. Interview

2. Secondary data
   a. Company history rainfall data
   b. Organizational structure
   c. Location map and regional acquisition
   d. Rainfall data
   e. Interview or interview

RESULTS AND DISCUSSION

Definition of Erosion And Sedimentation

Erosion and sedimentation comes from the Latin erosionomen (meaning to eat away) is an event that occurs naturally by the erosion of solids (sediment, soil, rock and other particles) due to transportation by wind, air or ice, on soil and material under the influence of gravity or by seminal living creatures, animals that make burrows or plant growth which results in cracks in the soil, in this case it is called bio-erosion) (Widya, 2021). Erosion is not the same as weathering - weathering, which is the process of destroying rock minerals by chemical or physical processes, or a combination of both. In general, erosion involves three processes, namely capture or (detachment), transformation and deposition.

Data Processing

This stage is the most important stage where in this stage the process of calculating data and evaluating existing parameters is in accordance with mining technical principles so that from the results of the analysis a solution is in an upright and thorough field.

Conservation of Soil Data

The basic understanding of soil conservation is a series of efforts and strategies to prevent and inhibit the process of erosion and changes in biological and chemical structures due to errors in soil management such as acidification, salinization, and the dangers of other hazardous substances (Soetedjo & Nguru, 2023).

Types of Land Cover Vegetation

This is the first part that must be considered in efforts to conserve soil. To restore the function of soil that has been damaged, vegetation is needed which is capable of surviving extreme soil conditions (Maftuah & Nurzakiah, 2017). Later, over time, the soil will return to normal so that it can be replaced with more economical types of land cover crops such as legumes.

Soil pH Control

Apart from adjusting the traffic level, don't forget to check the acidity level of the soil, which if the soil is too acidic makes it difficult for vegetation to grow (Mulyanie & Romdani, 2018). Therefore, it is better to calcify soil that is too acidic so that the pH can return to normal, around 6.5.

Conservation of Soil Data

Soil conservation is a series of efforts and strategies to prevent and inhibit the process of erosionand changes in biological and chemical structures due to errors in soil management such as acidification, salinization and poisoning of other harmful substances (Firman, 2022). Land use planning will be carried out by controlling soil pH, so that the pH can return to normal and revegetated in every area that has been mined (Hariyadi, 2021).

Based on field observations at research locations around mining, erosion and changes in the structure of biological,

chemical and other hazardous substances occur, so efforts to control this must be carried out by placing each plot of land in a way of use that is in accordance with the necessary conditions so that no soil damage occurs, and pollute the mining environment and the surrounding community in general.

Types of Land Cover Vegetation

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And after the soil conservation activities have been carried out, the next step that must be done is the selection of vegetation types and planting of plant seeds. Where to choose the seeds to be planted must have competence in accordance with the conditions of the land so that they can grow and develop properly.

The profile of the robin bi plant which is used as the selection of plant seeds for revegetation is a native plant originating from Papua where the robin bi plant has a maximum length of 120 meters, the shape of the stem is upright for brown color, the leaves are green. To reproduce this plant is grown by using ore as an anti-tuna. In its habitat, robin bi is a strong plant and has tolerance to various types of media, both dry and wet (Eprilurahman et al., 2018). Robin bi plants usually grow in highlands and hills with a height of 400 m above sea level (Kurnia et al., 2014), and have a very dense root system that sticks out to the surface so it is very suitable for use in the revegetation process because it can strengthen the embankment material later.

CONCLUSION

Based on the results of research efforts to control erosion of ex-mining land at CV. Barend's, the authors can be taken as follows, 1) Conversion of land data as an effort to use ex-mining land using a mechanical device excavator backhoe into a digging and loading equipment with a caterpillar PC 200 type, capacity 0.9 m3 and a dump truck as a means of transportation with a Mitsubishi Colt Diesel type 125sd, capacity 3, 5 m3. 2) Type of vegetation Land cover to be carried out, namely: a) Plant seeds for revegetation of robin bi with a length of 120 meters. b) The activity of imprisoning the robin bi tree species will be planted in a mining area of 4 Ha with a 50x50 casing pattern. c) To carry out revegetation activities until the day it is completed, 50 workers are required within a period of 10 days. d) The total cost for carrying out revegetation activities is IDR 4,500,000; e) Soil pH control. f) Test the soil Ph. g) Dig five small holes in the planting area about 15-20 cm deep. h) Take a sample from each shovel hole to take small slices using the soil so that overall will get about 0.94 liter or so. i) Use tools to determine the true pH of the soil.

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