

Analysis of Land Management Achievement Activities in the Reclamation Stage at PT. XYZ

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Article Information	ABSTRACT
Article History Received : March 11, 2026 Revised : March 20, 2026 Published : April 04, 2026	Land reclamation is a crucial effort to restore former mining land so that it can function ecologically and economically again. XYZ conducts reclamation activities to meet applicable regulatory standards, therefore an internal assessment is required first before reporting to the ministry. This study aims to analyze the achievements of land management activities at the reclamation stage in PT. XYZ. The research method used is quantitative descriptive, with data collected through field observation and document analysis. The results of the study show that PT. XYZ has reached 25% of the reclamation plan in the first phase, with land management activities running for ± 2 months. However, this study also identified obstacles such as less fertile soil conditions and high rainfall, as well as the absence of erosion and water control buildings made by the company, even though they are included in the reclamation activity plan. One of the settlement options that need to be done to achieve optimal reclamation success is to increase tools and working hours at the reclamation activity site, considering that the success of reclamation is the basis for company reporting and the ministry's assessment of the sustainability of the company's activities.
Keywords: <i>Land; Mining; Reclamation; Revegetation.</i>	

INTRODUCTION

Land management is carried out in order to achieve functions and benefits in accordance with its designation, while ensuring compliance with the provisions of the reclamation guarantee set by the company (Prayoga, 2025). Therefore, the evaluation of the stages in land management activities is an important factor to measure the success rate of reclamation, which is carried out by the ministry to evaluate the sustainability of mining activities (MKes, 2025). Reference for the assessment of the success of the management of ex-mining land in accordance with Decree of the Minister of Energy and Mineral Resources (EMR) Number 1827 K/30/MEM/ 2018, concerning guidelines for the implementation of good mining engineering rules, and post-mining and post-operation in mineral and coal mining business activities (ESDM, 2018).

Effective and sustainable land management is one of the important aspects of post-mining reclamation activities (Juniah, 2017). PT. XYZ as one of the companies engaged in the mining sector realizes that the success of the reclamation process does not only depend on the implementation of physical activities, but also on the achievement of the land management targets that have been set. With the right reclamation stages, land that was previously degraded can be restored to its function, thus supporting environmental sustainability and the welfare of the surrounding community. (Wiwahono, 2026). Therefore, an in-depth analysis of the achievements of land management activities that have been carried out is needed, in order to assess the success

rate and identify the factors that affect the process (Amelia, 2025). This study aims to analyze the achievements of land management activities at the reclamation stage in PT. XYZ, considering that the implementation of this activity was carried out for 2 months and in the third month must report to the ministry for the success of its reclamation activities. The research was conducted by focusing on aspects of success, challenges, and recommendations for improvements that can be implemented to increase the effectiveness of reclamation activities in the future. It is hoped that the data from this study can be used by the company in completing the quarterly reporting of the reclamation activities carried out.

RESEARCH METHODS

The research is focused on the GYT landfill area which is the disposal area of PT XYZ. This study uses a quantitative approach with a descriptive method to analyze the achievements of land management activities at the reclamation stage at PT. XYZ. Data was collected through documentation studies, field observations, and interviews with related parties, such as field officers and reclamation project managers with a duration of 14 working days. The documentation study carried out includes the collection of secondary data in the form of reports on reclamation activities, planning documents, and reports on the achievement of land management targets, field observations include direct observation of post-reclamation land conditions, including physical aspects, vegetation, and environmental sustainability, while interviews include qualitative data collection through interviews with field officers and project managers to obtain information about processes, constraints, and the achievement of Land Management Activities (Hirfan, 2016).

The data obtained was analyzed quantitatively using descriptive statistics to assess the level of achievement of land management targets based on the indicators that have been set out in the attachment of the Ministry of Energy and Mineral Resources No. 1827K/30/MEM/2018, regarding procedures for assessing the success of reclamation in the mineral and coal mining sector. Qualitative data from interviews are analyzed interpretively to support quantitative results and provide an in-depth picture of the factors influencing achievement. Meanwhile, the validity of the data is maintained through source triangulation, which is comparing data from documents, observations, and interviews to ensure the accuracy and reliability of the research results.



Figure 1. Research Flow Chart

RESULTS AND DISCUSSION

The area of the research area is in the disposal of GYT hills covering an area of 19 hectares out of a total land opening area of 42,656 hectares. The land arrangement carried out by PT. XYZ aims to restore the former pit pit of the mine opening as a forest area, the location is as shown in the following figure 2:



Figure 2. Research Location (Red Box)

Land arrangement at PT. XYZ is adjusted to the local topography, where the area is a disposal area or an uneconomical material stockpile area, so it is necessary to arrange the shape of the stockpile material and the stability of the material that is arranged.



Figure 3. Land Planning

The next activity is to spread top soil, in the form of fertile soil as a rooting zone and spread with a thickness of 50 cm with a maximum slope control of 30°. This must be really considered, because it is related to the rooting zone of the plant that is carried out during the next stage of revegetation activities, because if it is less than required then it is likely that it will grow and the tightness of the initial plant will be disturbed, and also reduce the binder for the reinforcement of the soil layer so that it does not erode and cause landslides later on.



Figure 4. Propagation of Shoots

Then after the distribution of topsoil is completed, the construction of drainage channels is carried out to control erosion and sedimentation. The goal is to prevent landslides that have been arranged and erosion of topsoil spread by water media, both rainwater and surface water.



Figure 5. Drainage Channel Manufacturing

The results of observation and measurement in the field, land arrangement and topsoil distribution that have been carried out are 5 hectares from the initial target of 19 hectares, so it can be calculated that the realization of the target of land management and topsoil distribution is 26% and there are no indications or landslides at the location of land planning and topsoil distribution based on field observations. Erosion and sedimentation control buildings at the research site were only made drainage channels, while checkdams, dropstructures, and backslopes were not or have not been made. Previous research has shown that erosion rates decrease significantly with the age of reclamation and vegetation density, and planned revegetation strategies, especially in the early stages of reclamation, have been shown to accelerate soil stabilization and mitigate negative hydrological impacts (Ramadhan, 2025)

Therefore, if assessed based on the criteria for the success of reclamation of the production operation stage according to the decree of the Minister of Energy and Mineral Resources number 1827K/30/MEM/2018 and the results of observation data in the field, the achievement is as shown in the table 1, where in the initial process of reclamation activities have been carried out several stages in accordance with the stages required in the regulation of the Minister of Energy and Mineral Resources, although some erosion control and runoff water control buildings are still not visible in the field, but are still included in the part of the reclamation plan prepared by the

company, it is hoped that in the future it can be made as much as possible in accordance with applicable regulations.

Table 1. Assessment of Reclamation Success Criteria

No	Reclamation Activities	Object of Activity	Parameters	Plans	Realization	Success Standards	Weight	Score	Assessment Results
1							40		
		Ground Surface Arrangement	a. Area of the laid out area	19 Ha	5 Ha	1. Land laid out >90% of the plan 2. Only 70 - 90% of the land cleared has been laid out from the plan 3. Not done <70% of the land laid out from the plan		0	
						1. No landslides to minor landslides (1%) 2. There are light – moderate landslides (1-5%) 3. Severe landslides (>5%)		5	Not as planned
			b. Stability of the pile	No landslides	No landslides	1. Replenishment of ex-mine pits > 90% of the plan 2. Replenishment of the former mine pit 70 - 90% of the plan 3. Replenishment of ex-mine pits < 70% of the plan		0	
						1. No avalanches until landslides < 5% 2. There is a light avalanche of 5 - 10% 3. There is a moderate avalanche of 10 - 15%		10	
		Restocking of Former Mining Land	a. Area of the stockpiled area	19 Ha	5 Ha	1. Replenishment of ex-mine pits > 90% of the plan 2. Replenishment of the former mine pit 70 - 90% of the plan 3. Replenishment of ex-mine pits < 70% of the plan		5	Not as planned
						1. No avalanches until landslides < 5% 2. There is a light avalanche of 5 - 10% 3. There is a moderate avalanche of 10 - 15%		0	
	Land Use		b. Stability of the pile	No landslides	No landslides	1. > 75% of the total area of the former mine 2. 50 - 75% of the total area of the former mine 3. < 50% of the total area of the former mine		5	No Landslides
						1. Soil pH 5 - 6 2. Soil pH 4.5 - 5 3. Soil pH < 4.5		0	
		Soil spreading of the rooting zone	a. Area of stocked area	19 Ha	5 Ha	1. Created > 90% of the plan 2. Made 70 – 90% of the plan 3. Created < 70% of the plan	10	10	
						1. Created > 90% of the plan 2. Created 80 - 90% of the plan 3. Created < 80% of the plan		5	Not as planned
			b. Soil pH	5 - 6	6,05	1. Soil pH 5 - 6 2. Soil pH 4.5 - 5 3. Soil pH < 4.5		0	Soil pH 6.05
		Erosion control and water management	a. Drainage channels	1.900 m	500 m	1. Created > 90% of the plan 2. Made 70 – 90% of the plan 3. Created < 70% of the plan	10	10	
						1. Created > 90% of the plan 2. Created 80 - 90% of the plan 3. Created < 80% of the plan		5	Not Built Erosion Controller Buildings
			b. Erosion control building	-	-	1. Created > 90% of the plan 2. Made 70 – 90% of the plan 3. Created < 70% of the plan		0	

After calculating the reclamation assessment of the production operation stage based on scoring and weight, then the assessment is entered into table 2 below to obtain the total value of the assessment results.

Table 2. Total Final Score of Assessment

No	Activity Description	Weight	Assessment Results
1	Land Use		
	a. Land Surface Arrangement and Reclamation of Ex-Mining Land	40	20
	b. Soil Spreading in the Rooting Zone	10	5
	c. Erosion Control and Water Management	10	0
Total		60	25 %

The results of the interview with the project manager were known that the obstacles in the field during the activity process were the difficulty of finding fertile soil for the distribution of cover soil, the fertile soil stored at the beginning of the excavation was not enough to cover the entire reclamation area, So that fertile soil is taken from locations outside the activity area. Then also the next obstacle was the high intensity of rain during the activity process also interfered with the mobility of equipment, in addition to the fact that this land arrangement activity had only been running for approximately 60 working days. If the company's target is the implementation and assessment of the reclamation activity is good and meets the standard criteria set by the Ministry of Energy and Mineral Resources, then technical matters that become obstacles during the activity process can be eliminated as early as possible, for example by increasing the number of tools and working hours of equipment during the process of land management activities.

CONCLUSION

The achievement of reclaimed land management at PT. XYZ is only 25% because it is still the first stage and land management activities have only been running for approximately 2 months as planned. Several technical obstacles were found in the field during the activity process such as the lack of fertile soil material at the location and high rainfall. It is suggested that in the reclamation area, it is necessary to create soil conservation buildings and water controllers such as dam checks, dropstructures and backslopes in accordance with the requirements of applicable regulations, and in order for maximum results, it is necessary to consider increasing the number and working hours of heavy equipment operating in the reclamation area.

ACKNOWLEDGEMENTS

Thank you to all the team personnel involved in this research who have taken their time and thoughts, as well as to the head of the department who always supports this research activity from start to finish.

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