

## **COST AND BENEFIT ANALYSIS ON BREKSI CLIFF THE FORMER LIMESTONE MINING IN YOGYAKARTA**

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### **Abstract**

*This study aims to analyze the costs and benefits of the Breksi Cliff which is the former limestone mine in Yogyakarta. The type of data used in this study is primary data. The research is conducted by observation, library research, and in-depth interviews. The object of the research is the Breksi Cliff. The limestone mining activities have been started since the 1980s and now the quality of the limestone is also not suitable for mining and has no economic value. So that local residents creatively create the former limestone mining into a tourist attraction. The Breksi Cliff is a form of creative reclamation in the form of a natural museum that has historical value. The Breksi Cliff offers limestone relief which can also be used as an educational tour. Based on the estimated calculation of income per day if a normal day is IDR10,000,000, then at the weekend of IDR20,500,000, and in the holiday season reaches IDR51,250,000. However, there is no related regulation on retribution. Sleman District Government explained that until now there are no rules that regulate the attractions managed by citizens. It is expected that the Sleman Regency Government will immediately make regulations related to tourist attractions managed by citizens. The retribution can also increase Regional Original Revenue (PADesa). Then infrastructure improvements should be considered more for the safety and comfort of tourists.*

**Key words** *Tourism, Reclamation, Mining, Cost and Benefit Analysis.*

### **INTRODUCTION**

Indonesia is not only famous for its diverse cultures and tribes but also its natural wealth. It is no longer a secret that Indonesia's natural wealth is so numerous and varied. One of them is having a large enough mining potential. There are already enough areas to serve as a place for mining activities. Mining activities carried out continuously without stopping can cause natural damage. Therefore, in Law no. 4 of 2009 which regulates the mining of minerals and coal there are several stages of mining activities that end with post-mining activities. Post-mining activities are planned, systematic, and continuing activities after the end of part or all of the

mining business activities to restore the functions of the natural environment and social functions according to local conditions throughout the mining area.

Related to mining activities, Daerah Istimewa Yogyakarta (DIY) is included in areas that have mining potential. In Sleman, DIY, there is a limestone mining. Limestone mining activities in Sambirejo, Prambanan, Sambirejo, Sleman, DIY have been running since the 1980s. Counting more than 20 years of limestone mining activities are running. After mining activities stopped, post-mining activities undertaken by local residents is to make the reclamation of tourism. The reclamation can be said to be quite unique and has economic value that is not

less competitive with mining activities. With a creative improvement and clear regulation of Sleman District Government, reclamation from mining activities can also be used as a tourist attraction. The existence of these attractions also raises the potential of new jobs for local residents. The tourist attraction is now known as Breksi Cliff.

## **LITERATURE REVIEW**

### **Mining**

According to Law no. 4 of 2009 on mineral and coal mining explains that mining is part or all of the phases of activities in the research, management and exploitation of minerals or coal covering general investigation, exploration, feasibility study, construction, mining, processing and refining, transportation and sales, and post-mining activities. The final activity of mining is post-mining activities. Post-mining activities are planned, systematic, and continuing activities after the end of part or all of the mining business activities to restore the functioning of the natural environment and social functions according to local conditions throughout the mining area. One of the post-mining activities is reclamation. Reclamation is an activity undertaken throughout the mining business to organize, restore and improve the quality of the environment and ecosystem in order to function again.

### **Environmental Management Activities**

In the Government Regulation of the Republic of Indonesia Number 78 Year 2010 on reclamation and pascatambang principle of protection and environmental management of mining include:

1. **Technology Approach**  
It contains all planned physical and biological environmental management techniques to address the impacts of mining activities so that further environmental sustainability can be maintained and even to improve / enhance its carrying capacity.
2. **Social Economic and Cultural Approach**

This section specifies the assistance and cooperation of the relevant government apparatus required by the proponent to address the environmental impacts of mining activities in terms of cost, convenience, socioeconomic.

3. **Institutional Approach**

This section specifies the activities of each agency/other institution involved in the implementation of development and impact mitigation activities of the general mining activity plan in terms of authority, responsibility, and inter-agency relationships.

### **Environmental Issues Due to Mining Activities**

Mining activities, in addition to causing environmental impacts, have resulted in complex social impacts. Therefore, the environmental impact analysis (AMDAL) of a mining activity should be able to answer two main objectives (World Bank, 1998) in (Mills, 2014):

1. Ensure that environmental, social and health costs are taken into consideration in determining economic feasibility and determining alternative activities to be selected.
2. Ensure that control, management, monitoring and protection measures are integrated within the project design and implementation and closure plans.

### **Tourism**

Based on Law no. 10 of 2009 on tourism states that the strategic area of tourism is the area that has the main function of tourism or has the potential for tourism development that has an important influence in one or more aspects, such as economic growth, social and cultural, natural resource empowerment, environmental carrying capacity, as well as defense and security. Tourism Destination is a geographical area located within one or more administrative areas in which there are tourist attractions, public facilities, tourism facilities, accessibility, and interconnected communities and

complete the realization of tourism. Related to this, Breksi Cliff has the potential as a tourist destination because it has an attraction in addition to it also available public facilities and accessibility to the location. Tourism is organized on the basis of principles: benefits; kinship; fair and equitable; balance; independence; sustainability; participative; sustainable; democratic; equality; and unity.

### **Cost and Benefit Analysis (CBA)**

According to Schniederjans et al. (2004), Cost and Benefit Analysis (CBA) is a technique for analyzing costs and benefits that involve estimating and evaluating the benefits associated with alternative actions. This technique compares the value of current benefits with the investment of the same investment cost as a tool in decision making. The purpose of Cost and Benefit Analysis (CBA) is to determine or measure whether the usefulness of a project, program or activity is a good investment (cost) or not. The CBA also aims to provide a basis for comparing a project. Includes comparing the total expected cost of each option to the total expected profit, to see if the profit goes beyond cost and how much.

## **RESEARCH METHOD**

### **Data Type**

According to Yasin et al (2016) in Suryaningsum (2017), the source of the data is divided into two types. First, primary data means the data retrieval directly from the source as the object of research and secondary data which means data obtained indirectly from the data previously obtained. The primary data in this study is the result of observations from researchers in order to analyze the costs and benefits of the Breksi Cliff.

### **Data Collecting Method**

The study was conducted by case study method, observations, literature research and in-depth interviews at Breksi Cliff were conducted for approximately, February 2018 to July 2018. Researchers observed the activities in Breksi Cliff related to the cost and benefit analysis. Starting from the estimated volume of visitors who come in every day, parking fees, money coming in (voluntary). From these data, researchers can calculate estimated income in the Breksi Cliff. This study aims to answer research questions: How do local residents manage tourist objects Breksi Cliff? What is the government's action in regulating the retribution? How is governance or improvement of Breksi Cliff in the future? What kind of beauty is presented in the Breksi Cliff? How the application of CBA on Breksi Cliff?

## **RESULT AND DISCUSSION**

### **Breksi Cliff**

Sambirejo Village is one of the villages or villages in the Prambanan Subdistrict, Sleman Regency, DIY Province. Based on the 2015 village monograph data, the Sambirejo Village administratively borders the surrounding area, which includes:

Northern boundary : Pereng Village, Prambanan District, Klaten

Southern boundary : Sumberharjo Village Prambanan Sleman District

Eastern boundary : Katekan Village, Prambanan District, Klaten

West boundary : Madurejo Village, Prambanan District, Sleman

One tourist destination in Dusun Sambirejo, Prambanan, Sambirejo, Sleman, Yogyakarta is quite interesting. Breksi Cliff, this tourist attraction does not form naturally, its unique shape is like a carving of this masterpiece formed by eroded mining activities of building materials for many years since the 1980s and became a source of livelihood by local residents. Breksi Cliff presents a cliff with

a classic carving, not inferior to the tourist attraction that is abroad. In addition, tourists can enjoy the beauty of Yogyakarta from the top of the cliff. Tourists can enjoy the beauty of Breksi Cliff from 05.00 am. The right time if tourists want to see the sunrise. Breksi Cliff is closed at 6:00 pm. Breksi Cliff is still fully managed by the local community. Almost all of the officials and officers are domiciled in the area around the Breksi cliff.

To enter this tourist attraction is charged voluntary, while for motorcycle parking will be charged tariff of IDR2.000, - and car parking charged IDR5.000, -. Although the cost is cheap and affordable, but the management is quite good and organized. Limestone mine that exist in that place is volcanic ash deposits from volcano Purba Nglanggeran in Gunung Kidul. This means the area is included in the cultural heritage that must be preserved. Sleman regency prepares to formulate regent regulation regarding the withdrawal of retribution in tourist area of Breksi Cliff, Prambanan. Regulation is required immediately along with the participation of this attraction in the Enchantment of Enchantment Indonesia 2017. The award is Anugerah Enchantment Indonesia 2017 by Ministry of Tourism RI. Breksi Cliff wins the category of New Destination Top Travel Destination along with a number of other tourist object like Skywalk, Bandung. As of September 30<sup>th</sup>, 2017, Breksi Cliff occupies the first position of voting to surpass Kumala Island, Kukar.

### **The Strategy for the Development of Breksi Cliff Tourism**

In business development, the strategy is very important to be planned properly so as to be able to achieve the desired target. In this case, the development strategy of the Breksi cliff tourism must be considered carefully by the tourism manager. While this strategy or effort to improve the quality of Breksi Cliff tourism has been done even though it is not yet maximal because it is hampered by operational costs that are still lacking. The strategies that have been carried out by the managers of

Breksi cliff park attractions are (1) always maintaining the cleanliness of the tourist environment so that visitors always feel comfortable when visiting, (2) endeavored to renovate tourist attractions once every 6 months or once a year so that there is something different in this tourist destination with the aim that the tourists are not saturated with the same scenery, (3) add facilities and infrastructure of tourism objects, (4) increase promotion by planning art events once a week or once a month, (5) required to managers tourist attraction to show friendly attitude to tourists. In addition to community involvement in developing these tourism objects, the Tourism Office participated in contributing their role in the Breksi Cliff tourism object development strategy. The local tourism office is facilitating various needs of the community and tourists in supporting tourism activities. One example is the Yogyakarta City Tourism and Culture Department in collaboration with the local community to make spatial arrangements and install WIFI facilities in Breksi Cliff tourism objects.

### **Impact Analysis of Breksi Cliff Tourism in the Economy**

The development of Breksi cliff tourism certainly has a good impact on the economy of the local community. Communities around the tourist area of Breksi Cliff are currently not only relying on the results of agricultural products as a livelihood, but also participating in these tourism objects, such as selling, opening lodging, and also parking guards. Of course this can improve the economy of the community in the village of Sambirejo, so as to improve the standard of living of the community. In other words, the development of Breksi Cliff tourism objects can create jobs for people who want to participate. For the negative impact itself, so far the community has not felt it, because people feel more positive impact on the economy.

**Cost and Benefit Analysis (CBA)  
Breksi Cliff**

As prompted by Sultan Hamengkubuwana X that this Breksi Cliff has been long enough in the exploitation of limestone, so the quality of limestone in the Breksi Cliff is no longer feasible and has a low economic value. Until then formed tourist attractions Breksi Cliff that is now on the rise or in the level of popularity. CBA for limestone mining is considered not to provide maximum benefit when measured from costs incurred. The price of limestone is also not so expensive. Unlike the CBA Tebing breksi as a tourist attraction. The cost incurred for the reclamation of the tourist attraction is considered capable of providing high benefits because this one tourist attraction has a lot of visitors. The result of retribution and parking can be allocated for the revamping of tourism object and its infrastructure.

From the analysis of benefits also for the route to the Breksi Cliff not only to Breksi Cliff but also the route to go to other tourist attractions such as Ijo Temple. In addition, local residents can make tourism packages, where tourists can visit several tourist attractions in Dusun Sambirejo. So with these distant routes and difficult roads, tourists can enjoy more than one tourist attraction. There is also a large volume of visitors. When a normal day the number of visitors reaches 2,500 visitors and then towards the weekend can reach 5,000 visitors. When the holiday season comes the number of visitors can increase 5 times from the usual day of reaching 12,500 visitors. From the withdrawal for parking fees, it is able to generate quite a lot of income. Based on the number of visitors it can generate considerable retribution, if the local government immediately make regulations on retribution of tourist objects managed by citizens. Because it can increase the Regional Original Income (PAD) which can later be allocated to the interests of the community.

Estimated income / income of breccia cliffs per day based on the results of observations and observations conducted by researchers for

approximately six months starting from February 2018 - July 2018 are as follows:

<b>NORMAL DAY</b>			
	<b>Quantity</b>	<b>Fee</b>	<b>Amount</b>
<i>Motorcycle</i>	750	IDR2,000	IDR1,500,000
<i>Car</i>	250	IDR5,000	IDR1,250,000
<i>Entrance Ticket</i>	2500	IDR3,000	IDR7,500,000
<b>Total income per day</b>			<b>IDR10,000,000</b>

<b>WEEKEND</b>			
	<b>Quantity</b>	<b>Fee</b>	<b>Amount</b>
<i>Motorcycle</i>	1500	IDR2,000	IDR3,000,000
<i>Car</i>	500	IDR5,000	IDR2,500,000
<i>Entrance Ticket</i>	5000	IDR3,000	RP15,000,000
<b>Total income per day</b>			<b>IDR20,500,000</b>

<b>HOLIDAY SEASON</b>			
	<b>Quantity</b>	<b>Fee</b>	<b>Amount</b>
<i>Motorcycle</i>	3750	IDR2,000	IDR7,500,000
<i>Car</i>	1250	IDR5,000	IDR6,250,000
<i>Entrance Ticket</i>	12500	IDR3,000	IDR37,500,000
<b>Total income per day</b>			<b>IDR51.250.000</b>

**Impact Analysis of Breksi Cliff  
Tourism in the Social Field**

The development of Breksi cliff tourism has a positive and negative impact in the social field. The positive impact is mutual respect and tolerance between local people and migrants. For example by respecting and accepting culture among fellow visitors or tourists who accept local

culture and local community members who accept culture among others, be it visitors or tourists who accept local culture and local residents who receive culture from the outside well. While the negative impact that can be felt is the existence of social irregularities. For example, when on the Breksi cliff is holding certain events there are some people who bring liquor into the tourist attraction to get drunk and there are also a group of young people who like reckless, causing noise in tourism objects to seek popularity by showing their group identity . However, all of that can be conditioned because the management and the village government have coordinated to anticipate such things. The method carried out by the village government usually calls a person or group of people who deviate to be given socialization and a warning not to repeat.

#### **Impact Analysis of Breccia Cliff Tourism in the Field of Culture**

The development of Breksi cliff tourism has a positive and negative impact on the cultural field. The positive impact is that we become more familiar with other people's culture. For example at the time of the holding of a Yogyakarta art festival at Tebing Breksi on 8 September 2016, at which time a culture was displayed from several regions in Yogyakarta. For example Tayub (Gunung Kidul) culture, Reog Wayang (Bantul), Kesenian Krumpyung (Kulon Progo). For the negative impact that can be felt is the influence of other cultures that will flow naturally and slowly influence the existing cultural structures in the Sambirejo community. All that is seen when there are some people who used to live modestly to become consumptive living patterns, starting to reduce the sense of togetherness, especially for those who compete in selling around tourist attractions even though only a few people.

#### **Feasibility Analysis of Breccia Cliff Tourism**

Based on the explanation about the strategy and also the impact of tourism development on the economic, social and cultural fields, the writer will try to analyze the tourism feasibility of Breksi cliff in terms of some of these fields. In the field of social economy, Breksi cliff tourism can be declared feasible on the grounds that the presence of tourism can improve the economy and standard of living for local communities. In addition, these tours can be used as a means to promote various local cultures or arts which are now being displaced by foreign cultures entering Indonesia. Feasibility in terms of tourism promotion can be said to be feasible, the proof is that these tourism objects are very popular among the public, many visitors come to enjoy the beauty of Breksi cliff tourism. The tourism object also presents views that can spoil the eyes of visitors. Even though the tourism infrastructure still has to be improved, the Breksi Cliff is already worthy of being recommended as a must-visit in Yogyakarta. On the other hand, there are things that are stated to be still not feasible for the author is the access road to tourist sites. Roads that are uphill and narrow will make it difficult for visitors to reach the location of Breksi Cliff tourism objects. We recommend that road access to tourist sites be improved so that from the affordability aspect, Breksi cliff tourism can be declared feasible because it does not endanger visitors during the trip to tourist sites. For tourism management, there should be interference from the government, because the government is able to improve the quality of tourism with development more easily than the management of the community independently. If this can happen, then Breksi cliff will be more suitable as a tourist place.

## **Problems Encountered and Corrections**

### **Infrastructure Leading to Breksi Cliff.**

The road to the Breksi Cliff is still far from the level of feasibility, because there are still broken roads and perforations. Given the field to Breksi Cliff is quite steep, with such road conditions it is feared to cause an accident. We recommend that the people who manage the Breksi Cliff pay more attention to infrastructure improvements.

### **Infrastructure Under Construction.**

Currently the construction of lodging in Breksi cliff is currently being carried out. The construction of the inn is expected to continue to pay attention to the surrounding environment, so that the construction of inns to increase the attractiveness of tourists will actually damage the surrounding environment which should be maintained. In this case the role of the government is also very much needed in connection with permission to establish a business. It is expected that the establishment of an inn has secured a permit with a selective system, so that it is expected to minimize environmental damage and other conflicts that might occur.

### **There is No Regulation for Retribution of Tourist Objects Managed by The Community.**

Although Breksi Cliff tourism object has long been opened, but until now there has been no regulation governing the retribution of tourist objects managed by the community. Sleman Regency Government explained that up to now it has not been made to the rules related to tourist attraction fees that are managed by the community. This potential should be even better if managed in an organized manner through *Badan Usaha Milik Desa (BUMDes)*. *BUMDes* in the tourism management village in this case Sleman, should have to be equipped with a clear legal umbrella, namely having a Village Regulation that manages the tour. The development of *BUMDes* as an effort to consolidate the rural economy is oriented

to the needs and potential of the village. Village potential that is feasible to be developed and managed through *BUMDes* is rural resources, the efforts of rural communities that have not been partially accommodated and constrained by many things such as capital, management of products (rural industries), marketing and others, as well as businesses that are not optimal explored. The formation of *BUMDes* will be an instrument for the formation and improvement of the revenue or *Pendapatan Asli Desa (PADesa)*. The formation and improvement of *PADesa* will be the capital for the establishment of development activities through local (village) initiatives, so that it will gradually reduce dependence on the government. Capital of *BUMDes* Article 39 paragraph 2 Government Regulation No. 72 of 2005, explains that the capital of a *Badan Usaha Milik Desa (BUMDes)* can come from:

- a. Village government,
- b. Community savings,
- c. Government, Government, Provincial Government and District / City Government Assistance,
- d. Loans, and / or
- e. Equity participation of other parties or profit sharing cooperation on the basis of mutual benefits.

Based on this, then for the establishment and development of *BUMDes* the Sambirejo community can obtain capital from the government through *APBDes*. If the tour can be managed by the village government, then it is expected to contribute to the improvement of *PADesa*, considering that the turnover of the tour is quite a lot. This is what is meant by empowerment that is oriented towards self-sufficiency and independence with the availability of management funds and development financing for the village. If rural development works well, it is expected to have an impact on improving the quality of life of rural communities. With the availability of *PADesa*, the village government will have the ability to plan and implement rural development to get out of poverty, because it has the ability

to provide infrastructure and other important facilities by not only waiting for the development of the government, provincial government and local government (Pamungkas and Suryaningsum, 2017).

## CONCLUSION

Breksi Cliff is not naturally formed, its unique shape is like a masterpiece carving was formed due to eroded mining activities of building materials for many years since the 80s and became a source of livelihood by local residents. Based on CBA, Breksi Cliff provide more benefits when used as a tourist attraction than mining if judged from the cost incurred. The management of Breksi Cliff tourism is entirely managed by local residents and there are still some improvements to be made such as road repairs and other infrastructures. Improvement of infrastructure such as highways to Tebing breksi for tourists to feel safe in their journey. Breksi Cliff management can make tourism packages around Sambirejo Hamlet. We recommend that the formulation of regulation related to the retribution of the tourism object which is managed by the residents should be immediately established, since the retribution can increase the local revenue.

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