

# 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. Then infrastructure improvements should be considered more for the safety and comfort of tourists.

**Keywords:** Tourism, Reclamation, Mining, Cost and Benefit Analysis

## 1. 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. 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.

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.

## **2. Literature Review**

### **2.1. 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.

### **2.2. Environmental Management Activities**

In the Government Regulation of the Republic of Indonesia Number 78 Year 2010 on reclamation and post-mining principle of protection and environmental management of mining include: (1) *Technology Approach* that contains all planned physical and biological environmental management techniques (2) *Social Economic and Cultural Approach* that specifies the assistance and cooperation of the relevant government apparatus required by the proponent (3) *Institutional Approach* that specifies the activities of each agency/other institution involved in the implementation of development and impact mitigation activities of the general mining activity plan.

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

Due to the complex social impacts, 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.

### **2.4. 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.

### **2.5. 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.

### **3. Methodology**

#### **3.1. 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.

#### **3.2. 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. This study aims to answer research questions: How do local residents manage tourist objects BreksiCliff? What is the government's action in regulating the retribution? How is governance or improvement of BreksiCliff in the future? What kind of beauty is presented in the BreksiCliff? How the application of CBA on BreksiCliff?

### **4. Result And Disucussion**

One tourist destination in Sambirejo that quite interesting is Breksi Cliff. Breksi Cliff presents a cliff with a classic carving, not inferior to the tourist attraction. Breksi Cliff is still fully managed by the local community.

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, -. 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.



**Fig. 1.** Breksi Cliff

#### **4.1. 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. 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 (2) endeavored to renovate tourist attractions once every 6 months or once a year (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.

#### 4.2. Impact Analysis of Breksi Cliff Tourism in the Economy

The development of Breksicliff 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. 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.

#### 4.3. Cost and Benefit Analysis (CBA) Breksi Cliff

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 Breksi Cliff 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.

From the analysis amount of visitors is large enough. It is estimated 2,500 visitors for normal day and 5,000 visitors for weekend. Surprisingly, its increase 5 times in the holiday season to 12,500 visitors. From the withdrawal for parking fees, it is able to generate quite a lot of income as can be said to increase the Regional Original Income (PAD) which can later be allocated to the interests of the community. Estimated income of Breksi cliffs per day based on the results of observations conducted by researchers (February 2018 - July 2018).

**Tabel 1.** Estimated income of Breksi cliffs per day (February 2018 - July 2018).

<b>NORMAL DAY</b>			
	<b>Quantity</b>	<b>Fee</b>	<b>Amount</b>
Motorcycle	750	IDR2,000	IDR1,500,000
Car	250	IDR5,000	IDR1,250,000
Entrance Ticket	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>
Motorcycle	1500	IDR2,000	IDR3,000,000
Car	500	IDR5,000	IDR2,500,000
Entrance Ticket	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>
Motorcycle	3750	IDR2,000	IDR7,500,000
Car	1250	IDR5,000	IDR6,250,000
Entrance Ticket	12500	IDR3,000	IDR37,500,000
<b>Total income per day</b>			<b>IDR51.250.000</b>

#### **4.4. 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. While the negative impact that can be felt is the existence of social irregularities, that some tourist still can not respect the the norm of the surround society, like bringing liquor, making noise to pay attention, etc.

#### **4.5. Impact Analysis of Breksi 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 The Breksi Cliff is being a stage to promote other culture in Yogyakarta by introducing it as event package like Yogyakarta art festival. But then, it will also negatively affect on how the local community influenced, especially at their cultural habit, by other culture and life style.

#### **4.6. Feasibility Analysis of Breksi Cliff Tourism**

Based on the explanation about the strategy and also the impact of tourism development on the economic, social and cultural fields. In the field of social economy, Breksicliff tourism can be declared feasible on the grounds that the presence of tourism can improve the economy and standard of living for local communities. 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. 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. For tourism management, there should be interference from the government.



**Fig. 2.** the explanation about the strategy and also the impact of tourism development on the economic

#### **4.7. Infrastructure Under Construction**

Currently the construction of lodging in Breksicliff 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.

#### **4.8. 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. 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 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. Based on Capital of *BUMDes* Article 39 paragraph 2 Government Regulation No. 72 of 2005, explains that the capital for the establishment and development of *BUMDes* can obtain capital from the government through *APBDes*. 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.

### **5. Conclusion**

BreksiCliff 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, BreksiCliff provide more benefits when used as a tourist attraction than mining if judged from the cost incurred. The management of BreksiCliff 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 Tebingbreksi 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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