

Analysis of community understanding on the dangers of quarry mining to the environment: a case study of community forest at Karang Sidemen Village North Batukliang District, Central Lombok

By Agus Herianto

3

IOP Conference Series: Earth and Environmental Science

PAPER · OPEN ACCESS

2

Analysis of community understanding on the dangers of quarry mining to the environment: a case study of community forest at Karang Sidemen Village North Batukliang District, Central Lombok

5

To cite this article: A Herianto *et al* 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **413** 012034

View the [article online](#) for updates and enhancements.

²**Analysis of community understanding on the dangers of quarry mining to the environment: a case study of community forest at Karang Sidemen Village North Batukliang District, Central Lombok**

A Herianto^{1*}, Ibrahim², Mahsup³, N Rochayati⁴ and Mas'ad⁵

^{1,2,4,5}Geography Department, Faculty of Teacher Training and Education, Universitas Muhammadiyah¹ Mataram, Indonesia

³Mathematic Department, Faculty of Teacher Training and Education, Universitas Muhammadiyah Mataram, Indonesia

^{*)}Email: agusherianto.ummat@gmail.com

Abstract. Mining material of quarry (class-C) as one of the activities that utilize natural resources should be able to bring good impacts to the community economy, but with the understanding of the community that is still said to be low. Some factors such as economic impetus, ignorance aspect, personal interests, political elements, the usage, the quarry brings more negative impact. This is due to the fact that there are no clear rules and no boundaries in operating the mining process. Reclamation is very difficult to do. The purpose of this research is to ²explain to the community of the dangers posed by quarry to the environment of the community forest at Karang Sidemen Village North Batukliang District, Central Lombok. This research uses qualitative method of research and uses three methods of data collection, namely observation method, interviews, and documentation conducted in the village ⁷. This research uses four stages of data analysis, namely data collection, data reduction, display ⁹ or presentation, and data verification. The results show that the understanding of the people about the dangers of class-C mining to the environment of the community forest in the village of Karang Sidemen is still low, due to low education level and based on economic drive factor.

1. Introduction

Natural resources are one of the necessary capital of development. Therefore, another essential money, its utilization, should pay attention to the factors of demographics, socio-cultural, geography, geology, topography, flora, and fauna, all of which are environmental factors. Meanwhile, man is instrumental in the environment and affects the environment [1]. To fulfill the needs of his life, both clothing, food, and board. It is not refutable that human needs are increasingly diverse, one of which is the need for a board/shelter. The increasing number of population is an essential factor in increasing housing needs ⁴. To meet the needs of the larger land people in various ways try to expand the area, one of which is by mining.



The mining industry is one of the reliable sectors of the Indonesian Government to bring in foreign exchange [2].

The Government issued a Government Regulations in lieu of Laws (PERPU) No. 1 of 2004 on the change in LawNo. 41 of 1999 On Forestry. The new rules provide legal legitimacy for the Government to grant permits to national and multinational companies to conduct open mining in protected forests. President Megawati Soekarnoputri signed the Government Regulations in lieu of Laws (PERPU) on March 11, 2004. The management of mining in one area can provide community welfare, especially in the mining area itself. But what happened precisely; the mining area was trapped in the natural resource curse and Dutch disease [3]. Sustainable development advocates argue that this concept provides a context for thorough sustainability where the sophisticated thinking of green development is challenging to materialize. To realize sustainable development in Central Lombok District is required integrated planning, involving all related services in the management of environmental and natural resources [4].

Although theoretically, Indonesia becomes a potential country as the investment destination country, in practice, often some problems cause legal uncertainty. For example the legal certainty of mining investment field [5]. Although mining activities are regulated in the law, however, environmental problems still occur, this is due to the digging of non-metallic minerals (sand, gravel, timber soils) unrestrained. As an example in Karang Sidemen village, Batukliang North District, Central Lombok District that not all mining quarries have a regional mining permit (SIPD). Quarry issue in the Karang Sidemen village is a complex one as it involves many people, both people from the town itself and the outsider who have the advantage of the quarry existence of the quarry. Local Regulation No. 11 the year 2003 on the requirements of quarry mining business of the village of Karang Sidemen states that the mining business could only be done if they have obtained the local Mining Permit (SIPD). The Governor issued the permit after receiving recommendations from the mayor or regent as well as other government agencies related to land rights and environmental disorders.

The instantaneous profit received by the people of Sidemen today is not worth compared to the cost spent on conservation. Sidemen village in the next 15-25 years may no longer be a clean water supply area for some parts of Central Lombok as it may be dry and barren due to damaged plantations, and badly impacted agricultural regions that influence the sustainability of the ecosystem in it. Even today, the quarry mining has also penetrated the fertile areas of productive farming using heavy equipment in the area. Therefore, this study seeks the community level of understanding on the dangerous of mining quarry activity.

2. Method

The qualitative research method is called a new approach and post-positivist method based on the philosophy of post-positivity theory [6][7][8]. In this research, the authors use qualitative methods because the data obtained in the field is descriptive data. The design used is a review the problem of the current sign, in which case the authors will undertake a study related to the analysis of the community understanding about the dangers of quarry for public forest area at Karang Sidemen Village, Batukliang district north of central Lombok District.

In this study, the subject of the research is a respondent and determined by using a purposive sampling. The respondents are divided into two categories, namely key respondent and ordinary respondent. The key respondent is the community of Karang Sidemen Village, who live close to the mining area while the ordinary respondent is the head of the village of Karang Sidemen, Batukliang District north of central Lombok regency. The data and analysis flow are presented in Figure 1.

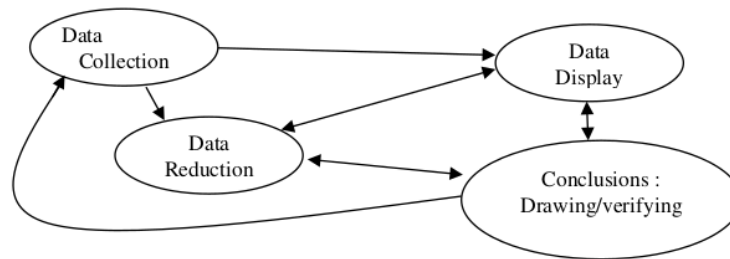


Figure 1. Components of interactive model data analysis

3. Result and Discussion

3.1 Community understanding on quarry excavations in Karang Sidemen Village

The community around the mine site in Karang Sidemen Village generally stated that they are not familiar with the quarry mining term, of which the excavation consisting of sand, stone, gravel, and a pile. They only know that they dig sands, pebbles, gravels, and soil and try to make income for themselves. The people in Karang Sidemen Village and those who live around the quarry (sand, stone, gravel, and pile) excavation sites have never heard of the term even though they do the excavation every single day.

This situation is understandable if viewed from the education level of the miners. Most of them only completed basic school level. Out of 41 miners, 23 graduated from basic school, 9 of them graduated from junior high school, 6 dropped out of school, and 3 has never attended education of any levels. Due to this situation, it is difficult for them to identify any excavated materials whether they belong to class A, B or C. However, when asked about the elements contained in the excavated materials, they were able to answer correctly and adequately.

The level of understanding of the community around the quarry mining area in Karang Sidemen Village regarding quarry/group-C excavations consisting of rock, sand, gravel, and the soil is still basic. This condition was triggered by the low level of education of the miners. Based on an interview with one of the miners it was revealed that the main purpose of the quarry excavation is Karang Sidemen Village is economic impetus. The income made from the excavation is inadequate for work that is quite substantial. The income earned by the miners depend on the number of dump trucks that come to their location to buy mining products in the form of pebbles, sand, or soil. The price given for each dump truck is IDR. 200,000 where IDR. 80,000 of the total amount is deposited to the landowner, and the remaining is divided among members who are mining. This means that the net income earned by each miner depends on the number of dump trucks that come to buy material and the number of miners involve in the job.

Based on the explanation above, it can be concluded that the primary purpose of quarry excavation in Karang Sidemen Village is purely motivated by economic factors. The average communities around the edge of the forest do not have permanent jobs other than farmers, gardeners, and livestock farmers who cannot generate sufficient income every day to meet their daily needs. Apart from the very minimal income, quarry mining is the only livelihood available (highly dependent on the number of dump trucks that come to buy materials and the number of miners in one mining location). However, there seems to be no other choices for the local community, given the low quality of human resources.

3.2 The understanding Karang Sidemen people on quarry excavation procedures which are safe and pose no harm to the community forest area.

The observation activities carried out have revealed that the mining operation in Karang Sidemen village can be categorized into two types include traditionally operated mining and mining by using heavy equipment. The mining activities are carried out by miners from both inside and outside Karang Sidemen village with a land lease system. Miners from outside of the village are more dominantly using heavy

equipment in carrying out their operations. Meanwhile, miners from Karang Sidemen mostly use traditional methods and tools.

The interviews with the miners regarding how to conduct excellent mining have revealed that the miners cannot explain it well due to the fact that they averagely mine without clear procedures. The head of Karang Sidemen Village revealed that the miners carried out the mining activities without guidance; they only excavated the mining areas to which they were entitled to. The miners would excavate the materials until it was close to residential area. When this information was confirmed, the miners admitted that they were digging up to the limit of their land, whether or not the boundary of their land was a building, it was not a serious matter to consider. Another thing that also appears at the mine site is that the exploitation site is located in a residential area and leaves a hole that is quite dangerous especially during the rainy season. The former quarry is covered with rain, so it leaves no mark, vulnerable to children who play around the mine site and pedestrians who are unaware of the hole's existence.

The presence of this mining area leaves many problems from damage to infrastructure (village roads) to village security issues. The results show that in general the community still do not understand well the appropriate procedure to mine a quarry, which is consisting of sand, stone, gravel and embankment soils, that are safe and do not damage the environment. Mining behavior demonstrated by the miners is divided into two categories, namely traditional behavior where the mining activities are carried out using simple tools or in manual manner, and modern behavior where mining activities are carried out using heavy equipment. The people, both miners and landowners, who use heavy equipment have stopped their activities and abandoned the mine site. This condition has affected the landscape of the environment as no reclamation process carried out by the miners, landowners, and surrounding communities, one example revealed by [9].

3.3 The Understanding of Karang Sidemen community on the dangers of quarry excavations in the community forest area

This study found that the community's understanding of the dangers of quarry excavations consisting of sand, stone, gravel, and soil is still low due to low educational background. It can even be said that the people of Karang Sidemen Village are not concerned that much about the dangers posed by the excavation. The land used as a mining site was originally a plain field with towering trees, namely community forest land. The area is a fertile area at the foot of the southern part of Mount Rinjani. Based on its natural potentials, this area was designated by the government of West Nusa Tenggara Province as the Rinjani geopark area. By the Central Lombok Regional Government, it was designated as an area whose development focus was directed towards the agro-business sector.

The environmental conditions change very dramatically and indicate significant damage to the environment. Water pollution occurs due to the activities of miners who flush mining materials waste and discharge the wastewater back into the existing water channels. The quarry excavation leaves many holes in the area which are quite dangerous for the surrounding population, especially children (especially in the rainy season), as they may cause accidents. The former excavation slums also have the potential to spread diseases. On the other hand, the formation of the earth's surface will also change, which may lead the occurrence of landslides. This research shows that the people of Karang Sidemen Village are only concerned about their personal interests without thinking about the impact of what they are doing to the society, the environment and the survival of living things in the future. Even though the potential of the area and the natural resources they have is very abundant that they can support the community's economy and fulfill their needs, the quarry excavation is not the only livelihood available for them to make ends meet.

4 Conclusion

Based on the problem background and discussion, it can be concluded that the level of understanding of the Karang Sidemen community associated with quarry/group-C excavation in the community forest area

is still low. Many aspects contributing to it such as economic impetus, points of ignorance, personal interests, political elements, and the dominant feature is the low level of education of the miners. It is known that the primary purpose of the quarry excavation in Karang Sidemen Village is due to economic impetus. Mining behavior demonstrated by the miners is divided into two categories, namely traditional behavior where mining activities are carried out using simple tools or in manual manner and modern behavior where mining activities are carried out using heavy equipment. The community living around the mine site can be divided into three categories, namely those who agree to (pro) the mining, those who disagree (contra) and those who do not understand the mining activities in Karang Sidemen Village.

The community's behavior towards the environment and the procedures they applied to conduct exploration indicate that in general, the community still do not understand how to mine quarry materials properly that are safe and do not damage the environment. This condition triggers bad environment because there is no reclamation process carried out by local governments, miners, or the surrounding community.

References

- [1] Febrina Zulmi, "Keberpihakan Media Terhadap Isu Pelestarian Lingkungan Hidup," *Jurnal Kata*, vol. I, no. 2, pp. 101-108, October 2017.
- [2] Y Yudhistira, Wahyu Krisna Hidayat, and Agus Hadiyanto, "Kajian Dampak Kerusakan Lingkungan Akibat Kegiatan Penambangan Pasir di Desa Keningar Daerah Kawasan Gunung Merapi," *Jurnal Ilmu Lingkungan*, vol. IX, no. 2, pp. 76-84, October 2011.
- [3] La Ode Alwi, Arya Hadi Dharmawan, Akhmad Fauzi, and M Parulian Hutagaol, "Governance Institutional of Mineral Fund in Supporting Sustainable Development: Study Case Bombana Regency, Southeast Sulawesi Province," *Jurnal Ekonomi dan Kebijakan Publik*, vol. VII, no. 1, pp. 29-42, June 2016.
- [4] Lalu Satria Utama, "Analisis Sektor Basis PDRB dalam Pengentasan Kemiskinan Melalui Pembangunan Inklusif di Kabupaten Lombok Tengah," *Media Bina Ilmiah*, vol. I, no. 2, pp. 185-196, February 2018.
- [5] H Hartana, "Hukum Pertambangan (Kepastian Hukum Terhadap Investasi Sektor Pertambangan Batubara di Daerah)," *Jurnal Komunikasi Hukum*, vol. III, no. 1, pp. 50-81, February 2017.
- [6] CM Allwood, *The Distinction between Qualitative and Quantitative Research Methods is Problematic*, Quantity and Quality Journal, vol. V, pp. 1-13, Springer, 2011.
- [7] L Shield and Alison Twycross, *The Difference between Qualitative and Quantitative Research*, Paediatric Journal, vol. IX, pp. 24, Springer, 2003.
- [8] B Miles Matthew and Michael Huberman A, "Qualitative Data Analysis: An Expanded Sourcebook (2nd Edition)," *American Journal Evaluation*, vol. XX, no. 1, pp. 159-160, 1999.
- [9] M F Hakim, "Study of plant type in the mining of material species C in Pagerejo and Candimulyo Kertek Wonsobo," *Research and Community Service Journal UNISQ*, vol. VI, no. 2, pp. 84-87, 2019.

Analysis of community understanding on the dangers of quarry mining to the environment: a case study of community forest at Karang Sidemen Village North Batukliang District, Central Lombok

ORIGINALITY REPORT

14%

SIMILARITY INDEX

PRIMARY SOURCES

- | | | |
|---|---|---------------|
| 1 | Etika Ariyani. "Green Growth for achieving education and technology transformation in the mining industry", IOP Conference Series: Earth and Environmental Science, 2020
<small>Crossref</small> | 82 words — 3% |
| 2 | ejournal.undip.ac.id
<small>Internet</small> | 75 words — 3% |
| 3 | ro.ecu.edu.au
<small>Internet</small> | 62 words — 2% |
| 4 | A Syauqi, J Sudrajat, N Anbiyak, B Hutahaeen, R Adnis. "Kampoeng Reklamasi: a case study of the designation reclamation type of an ex-tin minein Bangka Island, Indonesia", IOP Conference Series: Earth and Environmental Science, 2020
<small>Crossref</small> | 51 words — 2% |
| 5 | es.scribd.com
<small>Internet</small> | 32 words — 1% |
| 6 | O K Haris, T S Djamiati, J S Adiansyah. "Good mining practices toward a good mine management: a case of mining business permit issuance", IOP Conference Series: Earth and Environmental Science, 2020
<small>Crossref</small> | 27 words — 1% |
| 7 | Fifiarna Fifiarna, Sukuryadi Sukuryadi, Nurin Rochayati. "Studi Partisipasi Masyarakat dan Pemerintah dalam | 16 words — 1% |

Mengurangi Resiko Bencana Abrasi di Wilayah Pesisir Pantai Nggelu Kabupaten Bima", Justek : Jurnal Sains dan Teknologi, 2018

Crossref

8	ijicc.net Internet	11 words — < 1%
9	sinta3.ristekdikti.go.id Internet	11 words — < 1%
10	puslit.dpr.go.id Internet	8 words — < 1%

EXCLUDE QUOTES OFF
EXCLUDE ON
BIBLIOGRAPHY

EXCLUDE MATCHES OFF