

## Social change and community perceptions on change environment due to sand mining

Fentinur Evida Septriana <sup>1\*</sup>, Syahra Ariesta Fitria Sari <sup>1</sup>, Bayu Nugraha <sup>1</sup>, Kartika Putri <sup>1</sup>

<sup>1</sup> School of Environmental Science, Universitas Indonesia; Salemba Raya Streets No. 4, Central Jakarta, DKI Jakarta, 10430, Indonesia

\* Correspondence: [fentinur.evida@ui.ac.id](mailto:fentinur.evida@ui.ac.id)

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### Abstract

Sand mining in Keningar village, which has been started since 1996, is still carried out by the community to date, even though the damage is already exist and severe. The community start to dredge the crop land to take the sand, then sell it. Sand mining activities are not only carried out by the residents of Keningar village, but also by another parties from outside the region. The change of land use from crop land into sand mining areas has many impact on various aspects of community life, both on social, economic and cultural aspects. The purposes of this study are to know the perspective of the community of Keningar village on sand mining activities that has been carried out to date, their effect for the environment, and social life patterns of the community of Keningar village. This study use qualitative method to describe all the information. The information was obtained from observations and unstructured interviews with several informants found at the site. The results of the study show that there is a social change in the community of Keningar village, caused by a paradigm shift from farmers to sand miners. The driving force for this phenomenon is economic factor, the demand for everyone needs are high. This paradigm shift has many effects not only on socioeconomic, but also for the environment. Massive exploitation of sand, gravel, and rocks cause the lost of fertile layers of soil and reduce groundwater reserves on community's crop land. The sand mining can be controlled since the government applied mining license instrument. However, there is still illegal mining carried out between the landowners and mining entrepreneurs by simple agreement. In reality, the indigenous character of the community of Keningar village is farmers and charatcter of "nrimo ing pandum" which actually can be developed to an advance economy without damaging the environment, through the intervention of the government, academics, or other stakeholdes. And one of them can be solved through education.

**Keywords:** Keningar village; land use change; Merapi mountain; mine; paradigm; sand mining; social change

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## 1. Introduction

Keningar Village is on the slopes of Mount Merapi, precisely in Magelang Regency, Central Java (Harianto, 2015). The people of Keningar Village generally have their main livelihood as farmers because the area is located on a mountain slope, so it has fertile soil. The people of Keningar Village, apart from working as farmers, also work as sand miners because Keningar Village is the village closest to Mount Merapi. As we know, Mount Merapi is an active volcano that often erupts, so the production of sand for building materials is also massive.

Sand mining has been carried out since 1996 and is still carried out by the community today (Wicaksono and Lestari, 2017). The community first carried out sand mining in the river basin area, but because the amount of sand in the area was starting to run low, some of it even ran out; sand mining activities began to be carried out on

agricultural land owned by the community. People started dredging agricultural land to extract sand and then sell it. Legally, sand mining is an illegal activity because it is not carried out in the proper place, and the sand mining activity does not have permission from the authorities.

The conversion of agricultural land into a sand mining area has an impact on various aspects of the lives of the people of Keningar Village; it can have an impact on social, economic, and cultural aspects (Arsal et al., 2008). The impact of changing the function of agricultural land into a sand mining area includes the loss of people's livelihoods as farmers, as a result of which many farmers have changed jobs. Another impact is the need for basic food, which should be met by the people of Keningar Village themselves because the reduction in agricultural land also causes the amount of staple food production to decrease.

The conversion of agricultural land into a sand mining area also has an impact on the environmental conditions of Keningar Village. Land previously guarded and cared for by the people of Keningar Village has now become exploited because the sand is taken. Over time, the exploited sand will run out and cause the environment to fail to achieve environmental principles, such as the principles of balance, sustainability, and dependency (Cunningham et al., 2012). Failure to achieve environmental principles will prevent the environment from being unable to support people's lives properly. This change in land use shows that perceptions about the environment around them have changed. People's perceptions vary about the environment.

This results in differences in ecosystem services, attitudes (e.g., doing well or needing improvement), and management choices (Elwell et al., 2018). Community perceptions can be useful for creating ecosystem modeling and management efforts. Therefore, the people of Keningar Village, who initially used the land for agricultural activities but have now changed it to mining activities, show that there has been a change in perception.

This study was carried out because there are still sand mining activities being carried out in the Keningar Village area; the sand mining is being carried out on agricultural land, which has changed its function. Sand mining carried out on agricultural land certainly causes damage, and the damage in Keningar Village has become severe. The second reason for carrying out this study is because it is necessary to find out the perceptions that exist in the Keningar Village community regarding sand mining activities that have been taking place so far, whether the profits obtained from sand mining that have been taking place may have changed the community's perspective on the environment in which they live alternatively, whether sand mining activities have changed the social life patterns of the people in Keningar Village.

## 2. Methods

This study was conducted from October to December 2019, with the study object located in Keningar Village, Dukun District, Magelang Regency, Central Java. Direct observations and interviews at the study location were carried out on December 24, 2019. This study used a qualitative descriptive method. This method is suitable for explaining community perceptions of sand mining activities that have damaged the environment in Keningar Village. Qualitative research methods are research methods used to examine the condition of natural objects (Sugiyono, 2009). Qualitative research methods were used because the author wanted to further explore new information that not many people knew. Meanwhile, descriptive research aims to describe something, generally its characteristics (Malholtra, 2004).

The types of data used in this study are primary data and secondary data. According to (Malholtra, 2004) primary data is data created by the author to solve the problem being handled. Primary data in this study comes from spontaneous, unstructured interviews conducted with several residents of Keningar Village. Secondary data, according to (Mustafa, 2013), is data that has been collected by other parties and has been documented so that the author can copy the data for the purposes of study or his research. Secondary

data in this study comes from written sources such as journals or documentation from previous authors who have conducted research on sand mining in Keningar Village.

Data collection techniques in this study include (1) interviews. According to (Sugiyono, 2009), interviews are used as a data collection technique if the author wants to conduct a study to find problems that must be researched and find solutions to problems that are researched in depth; in this study, used to obtain in-depth information about community perceptions of sand mining activities that have damaged the environment; (2) observation, observation activities are not limited to human objects, but also other natural objects (Sugiyono, 2009), can be used for studies relating to human behavior, such as work processes, natural phenomena, and a large number of respondents not too big; (3) literature study, this data collection method means reading books, journals or documentation from previous authors.

This study took samples from several Keningar Village residents found at the location. Sampling in this study used simple random sampling techniques, namely a random and simple sampling method, with the assumption that specific characteristics possessed by each population are not considered in the research (Creswell, 2008). The reason for using sampling techniques with simple random sampling is that the author does not yet know the population of the Keningar Village community that is involved in sand mining activities.

This study uses data analysis methods, according to Miles and Huberman in (Sugiyono, 2009), and uses three components of analysis, namely data reduction, data presentation, and drawing conclusions. This data analysis method is a series of activities to analyze non-numerical data, comparing it with existing theories to draw conclusions.

### **3. Results and Discussion**

Field observations were carried out on December 24, 2019, by visiting several sand mining locations in Banaran Hamlet, Keningar Village, Dukun District, Magelang Regency, both locations where mining was still being carried out, as well as former mining locations where mining was no longer being carried out. On the way, you can see the condition of the land around the location, where most of the land cover is agricultural land, trees, and weeds or bushes. On the way, you can also see several sand depots that have heavy equipment with quite a lot of sand in stock. This view shows that there are still sand mining activities in Keningar Village.

Interviews were conducted with several residents whom the author met at the location, whom the author considers can provide information about the conditions and perspectives of the community regarding the sand mining activities that have been taking place at the location. The first interview was conducted with the sand depot owner whom the author met on the trip. Based on information from the sand depot owner, sand mining activities in Keningar Village are still ongoing today, but do not provide too big a profit for him. Apart from that, permission from the relevant government is required if mining is carried out with heavy equipment. Sand mining with heavy equipment is only permitted in mining areas on rivers. Based on this information, it is clear that there has been progress in controlling sand mining activities in Keningar Village involving the local government. This was most likely an effort by local residents. Together with academics who have previously conducted many studies on the impact of sand mining in Keningar Village.



Figure 1. One of the sand depots in Keningar Village  
(Author Documentation, 2019)

#### 4.1. Economy of the Keningar Village Community

Based on direct observations in the field and interviews with several residents in Keningar Village, the livelihood of most of the people there is farming. Farming is a community culture in Keningar Village that has been a habit for a long time. People are used to growing rice, secondary crops, corn, chilies, cabbage, and various other types of vegetables. This farming culture has been passed down from generation to generation. The author groups the economic activities of the community in Keningar Village into three periods, namely the period before the rise of sand mining, the sand mining period, and the post-sand mining period.

Based on information from the head of Banaran hamlet, which is one of the hamlets in Keningar Village, before the rise of sand mining, residents in Keningar Village worked as farmers and firewood gatherers. Farming activities are carried out by residents who have sufficient land to grow crops. Residents who do not have sufficient land work as firewood gatherers, farm laborers, or stone statue makers. At that time, the people of Keningar Village were not very familiar with formal education and technological advances, so informants described that time as a time when people were still stupid. Many residents lift rocks manually to carve them into statues and sell them at low prices. This was confirmed by the statement of Rami, one of the residents, who explained that before sand mining, people in Keningar Village tended to live in hardship with a mediocre economy. When the writer asked about economic activities at that time, Rami said, “...Gold at that time was still 24,000...even 8,000...rice was still 750...at most 1,000 rupiah...people were still foolish, just following along to work to get money. Only realized and understood when it's all gone, that's it, ma'am...”. Based on this information, the condition of residents whose economy and knowledge were limited at that time can be described, so when a new source of income emerged, residents just joined in working to earn money.

During the period when sand mining was rampant, which, according to Mrs. Kemi, one of the residents of Banaran Hamlet, began around 1997, people who did not have land for farming began to change professions as sand miners or cockers. They work for mining entrepreneurs who have the capital to buy mining equipment. Some people even carry out private mining activities with minimal equipment, such as shovels and crowbars. People who own agricultural land continue to work as farmers, even though they sometimes work part-time for mining entrepreneurs. One resident called this period a good era because sources of income were abundant, and people's income increased. Based on Yono's statement, village residents who had been mining workers, even coker workers, at that time earned wages of around Rp. 20,000 each time to level the sand in a truck. In fact, the rupiah exchange rate at that time was still very good, and the prices of basic necessities were still cheap. Mining activities at that time did not require permits and were free to be carried out

according to the agreement between mining entrepreneurs and mining workers or residents who rented out their land for mining. Mining activities are widespread, both in rivers, riverbanks, or on land owned by residents.

In the post-sand mining period, which, according to information from the Banaran hamlet head, began around 2007, the use of heavy equipment for mining activities on people's land began to be prohibited. According to Yono, most of the sand in the river has been mined, so mining activity has reduced a lot. Since then, residents have started looking for alternative sources of income. The Banaran hamlet head explained that residents who had agricultural land from the beginning continued to farm on their land, while residents who did not have agricultural land worked for mining entrepreneurs who rented residents' land to mine sand.

Some of the land leased to mining entrepreneurs is agricultural land; there is also land covered with bushes or land that was originally covered with calliandra trees. The land leasing mechanism only involves an agreement between the land owner and the land tenant. The Banaran hamlet head explained that usually, a thousand square meter plot of land is rented for around three hundred million to one billion rupiah, depending on the sand content of the land. Regarding whether this price is profitable or detrimental to one party, it cannot be determined because the quantity and price of sand produced varies. However, according to information from one of the sand depot owners, they do not always make a profit. Sometimes, they experience losses, especially during the rainy season.

According to the head of Banaran hamlet, in the post-mining period, the economic conditions of the population did not change drastically for residents who did not have agricultural land. Some residents who do not have agricultural land continue to pursue their original work as firewood collectors. People who initially farmed continued their work, while people who initially worked as sand mining workers changed professions to bricklayers, while others became housemakers whose income was not low. According to the hamlet head, currently, it is very difficult to find workers who are willing to hoe in the rice fields, so the hoe worker's pay is considered sufficient "...Hoeing now is already 60,000 clean, already eaten twice... and if I need something, queue up, ma'am! Half a month or a month before you get it, ma'am...", said the village head.

The head of Banaran hamlet is of the view that the condition of the residents of Keningar Village can actually be said to be more prosperous now than during the sand mining era. The village head explained "...It's prosperous now, ma'am!..if it's mining, the money from work is spent lavishly so it's gone...". According to the hamlet head, the character of the residents of Keningar Village is actually that of farmers, not miners. According to him, the daily wages given to mining workers are actually spent more quickly on extravagances and, therefore, have less of an impact on the prosperity of the residents of Keningar Village. On the other hand, in the post-mining period, Keningar Village residents were more creative and good at managing finances. Some residents whose economic conditions are considered more capable have started raising cattle. Grass for animal feed is taken from private land, and it is seen as more profitable.

The opposite was said by one of the workers at one of the stone-smelting businesses. He said that for those who do not own land, working for mining entrepreneurs who have capital and permits is more profitable than working as agricultural laborers. This worker has been working in the field of sand mining and building materials for a long time. Economic needs required him to work as a miner. The worker said that he was willing to quit his current job if there was an alternative source of income that could meet his family's living needs.

#### 4.2 Current Conditions of Sand Mining in Keningar Village

As previously mentioned, when the observations were carried out, there were still several sand mining activities in the field, even though most residents thought that the sand had been mined. Kemi's mother has a different view. According to him, if the sand is mined, there will be more sand sent from the cold lava of Mount Merapi "...It never ends, it's like being escorted...", he said.

Based on information from several residents the author met at the location, mining activities in Keningar Village can currently be grouped into two, namely mining without a permit and mining that has a permit. Mining without a permit is usually carried out by individuals using makeshift equipment on privately owned land. Some of the private land is agricultural land or land that borders agricultural land owned by other residents. In fact, some residents rent out their land to entrepreneurs to mine sand.

Mining that has permits generally takes the form of mining in rivers using heavy equipment, although there are mines on land owned by residents that also use heavy equipment. Mining in rivers is usually integrated with river normalization activities for rivers that are experiencing shallowing due to sand resulting from the eruption of Mount Merapi. The river in Keningar Village that was still actively mining when the observations were carried out was the Senowo River. Figure 2. presents several examples of portraits of mining location conditions that the author encountered in the field. The mining activities observed by the author were carried out on open land and the Senowo River.

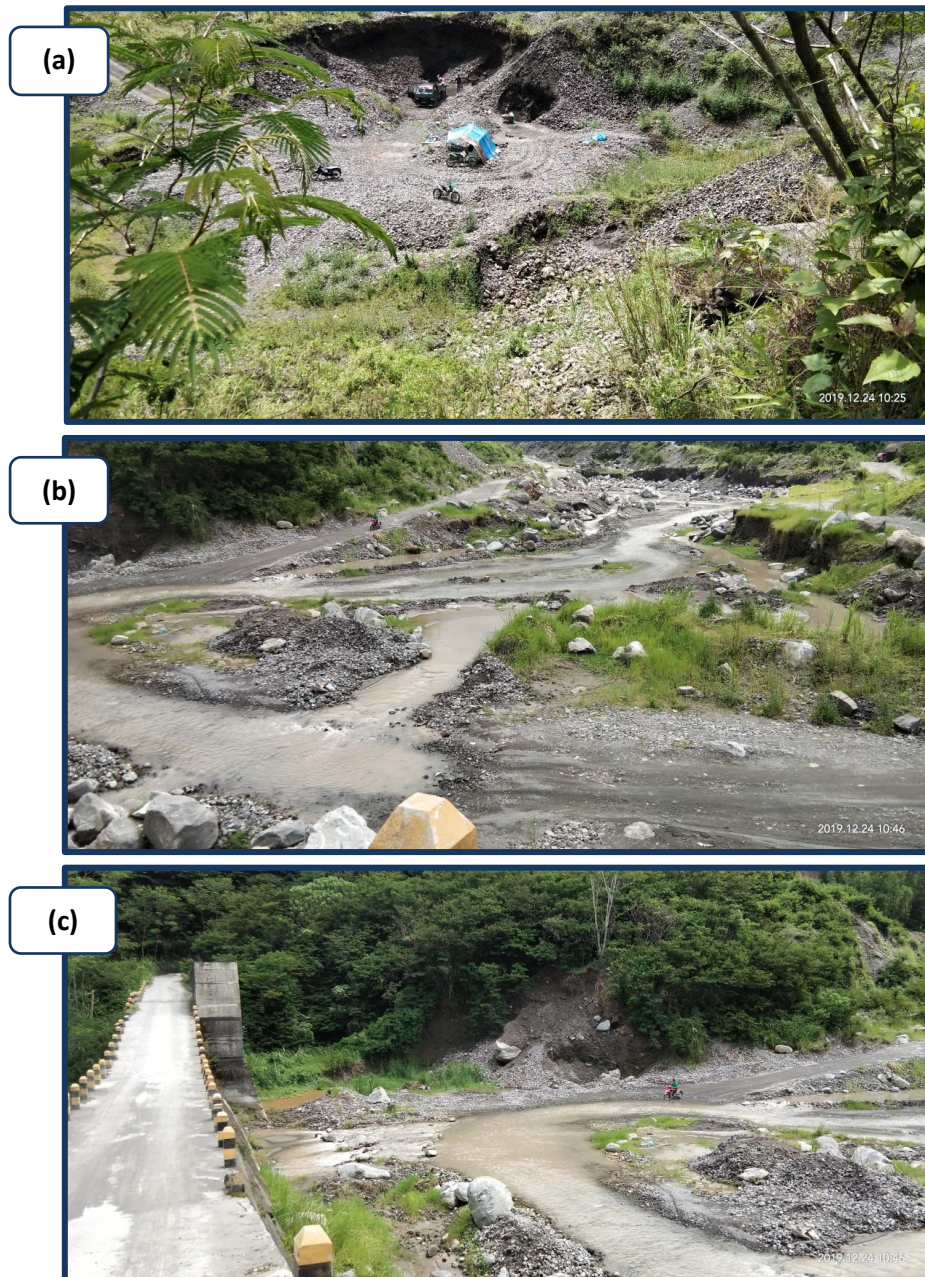


Figure 2. Conditions of sand and stone mining locations in Keningar Village: (a) Mining area on open land, (b) and (c) Mining area on the Senowo River (Author Documentation, 2019)

At the time this observation was made, sand mining activities with heavy equipment on people's land had been prohibited. Heavy equipment is only used on open land or in rivers. Mining on people's land is still carried out with minimal equipment, such as shovels and crowbars. Mining activities are currently taking place not only in sand but also in rocks.

Building material. Based on the explanation from the head of the Bavarian hamlet, river stones break more easily than stones on people's land, so stone mining activities on people's land are preferred. Stones from people's land are harder and of better quality, so they are preferred by buyers as building materials.

Based on information from one of the workers, gravel, and rocks from the cold lava of Merapi have good characteristics as building materials. Some of the mined gravel can be crushed to produce sand, which can then be sold at a profitable price. In Keningar Village, the author found a business where gravel is milled into sand, which is currently operating. This business arose due to the almost depleted amount of sand, so an initiative arose from residents who had the capital to open a business grinding gravel into sand. This business is combined with the business of cutting large stones to be used as building materials. According to one of the workers, the quality of the sand produced from the gravel mill is not as good as real sand, but it is very useful as a mixture for making bricks. Figure 3. shows one of the business places for grinding gravel into sand that the author encountered in the field.

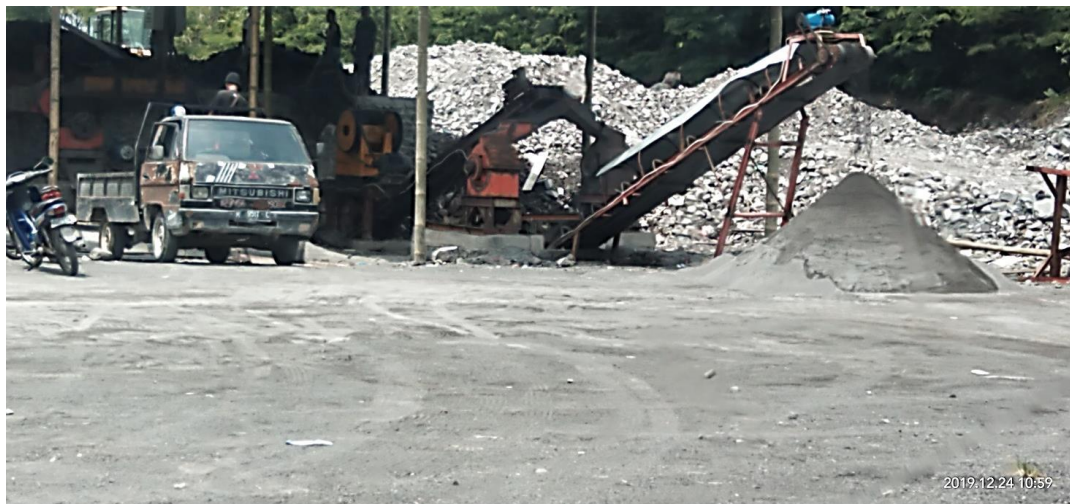


Figure 3. Business premises for grinding stone into sand  
(Author Documentation, 2019)

#### 4.3 Changes in Environmental Conditions in Keningar Village

Like the period of economic conditions of the community in Keningar Village, the author groups the environmental conditions in Keningar Village into three periods, namely the period before the rise of sand mining, the sand mining period, and the post-sand mining period. Based on information from one of the residents who had lived in Keningar Village for a long time, before sand mining became widespread, the land cover in Keningar Village was agricultural land with vegetation in the form of trees and shrubs. The edge of the road that leads to the peak of Merapi is in the form of high earthen walls. Even though they are high, the earthen walls do not collapse or landslide because they are supported by strong tree roots.

The type of tree that is often found in Keningar Village is the Calliandra tree. According to information from the head of Banaran Hamlet, calliandra tree seeds were distributed by the government to residents through village officials in 1977. This tree is very useful and easy to breed. Ore that falls from calliandra trees and breaks apart can grow many new tree seeds. Apart from that, this calliandra tree can grow on various types of land, including sandy land. The roots of this calliandra tree are strong enough to hold up steep ground to prevent landslides. Many villagers who work as firewood collectors depend on

this tree for their livelihood because the wood can be taken as good quality firewood. Thus, this calliandra tree is very suitable to be planted in sandy areas such as Keningar Village. Mrs. Kemi said that before the government distributed the calliandra tree seeds to residents, the vegetation that mostly grew on village land (apart from agricultural crops) was grass, such as remujung.



Figure 4. The small Kaliandra tree  
(Author Documentation, 2019)

Based on the description above, the environmental conditions in Keningar Village in the period before the rise of sand mining (before 1997) can be described as there were no former mining ravines like they are now. The roads in the village are also adjacent to high and sturdy earth walls, covered with many calliandra trees since 1977. The village head said that at that time, there was no sand mining. At that time, people were only allowed to take rocks from private land manually to process them into handicraft products, such as statues. Residents also use these stones for personal building materials, not commercialized.

During the sand mining period, mining was initially only carried out in rivers, which held a lot of sand and rocks formed from the cold lava of Merapi, but over time, mining activities spread to people's lands. Some residents support sand mining activities on people's land because of economic needs. The sand found on people's land is at various depths; some of it is in the top layer of soil, and some is under the surface layer of soil, so sand mining certainly removes the fertile surface layer of soil. The village head said that the fertile layer on the surface of the soil was only thin, about one meter.

Sand mining carried out on people's land or on agricultural land significantly impacts the environment. Residents with agricultural land directly adjacent to land where sand is mined tend to have difficulty getting groundwater. This is because groundwater from agricultural land tends to seep and flow sideways into deep depressions or undulating land that forms on land where sand is mined. Mr. Tarsi, one of the residents who owns agricultural land, explained *"...So if the way it is has returned, it's not the same, the residents want to get it how...reclamation is not reclamation..."* He continued, *"...the water source if it goes deeper and deeper, the water source stops, so it becomes difficult. For example, if this part is dug deep, that part will enter here, so it becomes difficult..."*.

Sand mining on people's land creates depressions, which cause the land to become uneven and wavy. If mining is carried out with heavy equipment, it can form deep depressions, even wide ravines. With the explanation above, it can be seen that there is a significant impact of sand mining on the environment and social life of residents, such as



undulating land surfaces, loss of fertile layers of agricultural land, and difficulty in obtaining groundwater on agricultural land.



Figure 5. Ravine from a former sand mine on the side of the road  
(Author Documentation, 2019)

In the post-mining period, the number of sand miners began to decrease. The main cause is the strict licensing for sand mining activities, especially for mining that uses heavy equipment. Heavy equipment has begun to be prohibited from being used on people's land. Mining that is permitted is mining in rivers or on open land (ravines) that have been mined. However, based on information from Mrs. Kemi and Mr. Tarsi, there is still sand mining on people's land which is done manually. There are also residents who rent out their land to mining entrepreneurs so that there is the possibility of using heavy equipment on the land. Land that has already been mined for sand and has many calliandra trees can still be mined for sand by residents or mining entrepreneurs. In fact, the sand content on the land is considered to be exhausted. This is one of the causes of the difficulty of the reclamation process on ex-mining land in Keningar Village, apart from the irresponsible actions of previous mining entrepreneurs. The Banaran hamlet head explained, "... *If it's like Boyolali, it must not be demonstrated, ...if the sand has been taken, it can be leveled and planted again. If it's here... the promise was like that but...?*". Based on Hamlet head's explanation, it is understandable that the use of heavy equipment for sand mining cannot implement the concept clear and clean mining which takes sand until it runs out, because heavy equipment cannot be operated with a high level of precision. Heavy equipment is only used for large-scale sand mining. Thus, there are always remnants of sand left behind in the existing land, so some residents who work as miners return to dig the land with whatever equipment they have.

Continuous sand mining on ex-mining land makes the land difficult to reclaim. As a result, the land function cannot be restored to its previous state, and the land function has been converted into mining land. The demands of the residents' economic needs are the driving factor for land conversion in Keningar Village. As mentioned in the previous theory,

the land conversion that occurred in Keningar Village had environmental, social, and economic effects. The effects on the environment are clearly visible in residents' complaints about wavy land, loss of fertile soil layers, and lack of groundwater on agricultural land adjacent to mining land. The socio-economic effects can be seen in the change in people's life patterns from farmers to miners.

#### *4.4 Keningar Village Community Perceptions of the Environment*

Persepsi The perception of the people of Keningar Village can be divided into three periods, namely the period before sand mining, the period when sand mining was rampant, and the post-sand mining period. The perception of the people of Keningar Village in the period before sand mining can be seen from the type of livelihood, the majority of whom were farmers, so their perception can be seen the environment as part of culture and life, a place to grow crops to meet life's needs.

During the period when sand mining was booming, people began to convert agricultural land into mining land. People who have agricultural land rent out their land to mining entrepreneurs to manage so that they no longer need to work as farmers to earn money. Simply by renting out the land, they will receive rental payments. People who do not have land will work for sand entrepreneurs. During this period, people's perceptions of the environment changed due to the large economic benefits of sand mining.

In the post-sand mining period, illegal mining began to be prohibited, and the sand mining licensing process was tightened because the environment in Keningar Village began to be damaged due to large-scale sand mining. This allows the people of Keningar Village to return to work as they did in the period before the rise of sand mining. People who have agricultural land will return to farming, while people who do not have land will continue to work as laborers in sand mines or look for other alternative jobs as bricklayers or hoe makers.

From the explanation above, it can be seen that the perception of the people of Keningar Village, who initially considered the environment as a part of life that must be protected, can change due to economic incentives. The economic benefits obtained from the environment when carrying out sand mining activities change people's perceptions regarding the environment as something that must be exploited to make a profit. As a result of this change in perception, the environment in Keningar Village has experienced much damage.

#### *4.5 Social Change in the Keningar Village Community*

In the descriptions above, it can be observed that the lives of the people of Keningar Village have experienced structured changes in their behavior patterns, relationships, and social structures so that in accordance with the theory described previously, there have been social changes in the people of Keningar Village from before the existence of sand mining to after sand mining. These changes are visible in economic life patterns and behavior, which ultimately influence the way Keningar Village residents view the surrounding environment.

According to the statement from the head of the Bavarian hamlet that the author explained previously, the character of the people of Keningar Village is basically that of farmers, not miners. The paradigm of being a farmer guides the people of Keningar Village to take action to utilize the natural conditions around them to grow crops and make statue crafts. Before the rise of sand mining, natural resources were sufficient to fulfill the lives of village residents. This feeling of sufficiency enabled residents to use natural resources wisely, even though Rami said that people were still stupid at that time. However, this feeling of contentment makes them have a life in harmony with their natural surroundings. At that time, people were able to adapt to the environmental conditions around them, including the Merapi eruption phenomenon. Mrs. Kemi explained clearly how she was able to see the signs that Merapi lava was going to fall down through her village based on animal movements and types of sounds, roar, wind direction, and sparks from the peak of Merapi. The lives of residents in Keningar Village before the rise of sand mining are evidence of the

theory of determination; namely, the way people think and act is strongly influenced by the environment. Village residents act to adapt to the environmental conditions around them.

As time goes by, increasing demands for economic and development needs lead to large-scale exploitation of natural resources. When the author asked when and who started sand mining activities in Keningar Village, none of the informants the author involved knew for sure. Something that is clearly visible is the demands of economic needs that arouse residents' interest in sand mining. This economic necessity becomes the driving force for exploitative actions on nature.

The change in profession from farmers to miners for some residents of Keningar Village caused a shift or change in paradigm which ultimately led to different patterns of action. As explained by the head of the Banaran hamlet that the author explained previously, the miners' income, which can be said to be quite large and given on a daily basis, makes residents prefer to live lavishly and wastefully so that without realizing it, the money they earn quickly runs out. In contrast to the miner's paradigm, the farmer's paradigm tends to guide village residents to act more carefully and wisely in managing their finances. This wise action also has an influence on the way residents use natural resources or social behavior.

In reality, not all residents in Keningar Village have an interest in mining. Based on information from the head of the Bavarian hamlet, only around 25% of the population in Keningar Village is involved in sand mining activities. According to him, apart from the demands of economic needs, it is actually the character of each citizen that makes them choose to become miners. In this post-mining period, the economic life of residents is more stable. The original character of the village residents still exists and guides them in improving the environment, although there are still a handful of residents who rent out their land to mining entrepreneurs.

Based on information from the depot owner, several residents, and the head of the Banaran hamlet, sand mining is currently under control due to government intervention with a licensing mechanism. This cannot be separated from the struggles of farmers and academics who have conducted studies on the impact of sand mining in Keningar Village. According to Rami, the true nature of the villagers is *"accepting the part"*, which means *"accepting with a big heart"* everything that befalls or is given to them. This characteristic makes village residents believe in government policies and is the reason for the success of various government programs in Keningar Village.

Thus, wise government intervention is very necessary to advance the economy of the people of Keningar Village without damaging the environment. This can be realized by directing or forming the paradigm of Keningar Village residents through quality education. The residents' interest in education is clearly visible from the high aspirations of one of the children the author met in the field, who had strong aspirations and wanted to obtain the highest possible education. Mr Yono, one of the workers at the stone mill, also said, *"...if given more fortune, yes, I will save for my child's future. I don't want my child to follow in his father's footsteps... if there is a fortune, yes, if he goes to college let him go to college to raise his parents' degree. Even though his parents are foolish, his child should be smart"*.

#### 4. Conclusion

Some conclusions from this study are:

1. The people of Keningar Village have experienced changes in their perception of the surrounding environment. This change in perception occurred in line with the change in economic activities from farming activities to sand mining activities. People's perceptions that initially considered the environment as part of culture and life changed to perceptions that considered the environment as a source of income to boost their economy.
2. Sand mining activities in Keningar Village have shifted or changed the paradigm of the people of Keningar Village, which has implications for social change, along with economic changes that have occurred from before the rise of sand mining to post-sand mining. The farmer's paradigm-changing to the miner's paradigm has a significant impact on the environmental damage that occurs.

3. By the assumptions that have been prepared previously, the results of this study indicate a change in the community's perspective on the environment due to mining activities that have been ongoing. Some people in Keningar Village have a perspective that tends to be exploitative, which was initially formed due to economic needs.
4. In this study, the reality was found that the original character of the people of Keningar Village as farmers had not completely changed, and their character " *accepting with a big heart*" is still firmly attached. Residents of Keningar Village have positive beliefs and views towards education. With these characteristics, environmental damage in Keningar Village can be prevented by advancing the residents' economy, which can be started through education.

The wisdom of external parties (practitioners, academics, government, etc.) is very much needed in economic development in Keningar Village.

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### **Author Contribution**

Conceptualization, F.E.S., S.A.F.S., B.N., K.P.; Methodology, F.E.S., S.A.F.S., B.N., K.P.; Software, F.E.S., S.A.F.S., B.N., K.P.; Validation, F.E.S., S.A.F.S., B.N., K.P.; Formal Analysis, F.E.S., S.A.F.S., B.N., K.P.; Investigations, F.E.S., S.A.F.S., B.N., K.P.; Resources, F.E.S., S.A.F.S., B.N., K.P.; Data Curation, F.E.S., S.A.F.S., B.N., K.P.; Writing – Original Draft Preparation, F.E.S., S.A.F.S., B.N., K.P.; Writing – Review & Editing, F.E.S., S.A.F.S., B.N., K.P.; Visualization, F.E.S., S.A.F.S., B.N., K.P.

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The authors declare no conflict of interest.

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