

Impact of Excessive Sand Quarrying on the Batak People's Economy, Environment and Safety: Implications for Government Intervention

ABSTRACT

Aims: To identify the impact of sand quarrying activities on the health, economy and environment of the Batak community whose people are dwindling in population. Further, the study aims to determine how the people demonstrate resilience in this face of economic adversity.

Study design: Using a qualitative research design and an interview as data collection method.

Place and Duration of Study: Batak community in Sitio Mangapin in Barangay Langogan, Northern Puerto Princesa , January to May of 2019.

Methodology: We invited 20 adult Batak who were engaged in small scale quarrying at the time of the study. The purpose of the study was explained to them and they were invited to participate in interviews. Only nine males and eight females signed the informed consent. Sixteen members of the community became the respondents in the study. The informants' age ranges from 25 to 52 years old, all are married and have children and all were participants in small scale quarrying being done in the community. Casual interviews, focus group discussions and observations were used to collect data from the informants. Interviews were done individually and were recorded with permission of the informants.

Results: Data showed that families participated in the quarrying because of poverty but the engagement in hard labor impacts the health especially of the male workers in which 25 percent (of those interviewed have acquired tuberculosis and persistent cough. About 50 percent of the women have acquired persistent back pain and loss weight. Observations yielded data on violations of the environment since the sand were taken not directly from the river but from the riverbank. Activities were found to be done on a large scale with trucks hauling from the river and the Batak taking away the riverbanks, creating large holes on the side which may result in flash floods during rainy days

Conclusion: The people's ability to survive despite hunger, disease, low morale and physical deprivation and lack of government support during the lean season is a demonstration of individual and community resilience.

Keywords: sand quarrying; environment abuse; indigenous people's resilience; economic, environmental and health impact;

1. INTRODUCTION

To say that sand is an important natural resource is an understatement. As a matter of fact, it is considered the be the second most consumed natural resource on earth. United Nations Environment Programme (UNEP) established that , "Sand and gravel represent the highest volume of raw material used on earth after water" but also emphasized that "their use greatly

exceeds their natural renewal rates". This is not surprising considering that the sand is an indispensable material in building mortars, main component in construction industry, and an important ingredient in water filtration chemicals and metals processing and in plastic industry.

Studies have been conducted to a limited extent, on the impact of excessive mining on the lives of indigenous peoples, who often are the most vulnerable victims. Studies on impact of excessive extraction of sand on lives of indigenous peoples were conducted on a limited extend. The extraction of sand from rivers in developing countries is reported by the press to be having severe and widespread impacts on rivers and coasts, but a lack of reliable information prevents scientific confirmation or quantification. According to WWF, the extraction of sand from rivers in developing countries is reported by the press to be having severe and widespread impacts on rivers and coasts, but a lack of reliable information prevents scientific confirmation or quantification;

Filho, et al. (2021), assessed the environmental impact of sand extraction and the problems associated with its illegal exploitation. It was found that extracting sand at a greater rate than that at which it is naturally replenished has adverse consequences for fauna and flora. Further, illicit mining activities compound environmental damages and result in conflict, the loss of taxes/royalties, illegal work, and losses in the tourism industry. Analysis pointed to the need for swift action to regulate sand mining, monitoring, law enforcement, and international cooperation.

Gravritea (2017) maintained that sand exploitation occur in underdeveloped and developing countries and problems related to them have to be solved. Among the countries mentioned which are confronted with illegal sand mining is the Philippines along with India, Malaysia, Bangladesh and Sri Lanka among others. In a study conducted by Tambajong et al. (2018) to determine the role indigenous peoples institutions in an effort to reduce the actions of sand mining in question. Data showed that the Marine Indigenous Peoples Institution has played a strong role to advocate and provide assistance to the community and intervene through the Sasi tradition which is expected to influence changes in attitudes of the community to be more aware of excessive sand mining.

Puerto Princesa City in Palawan. Philippines, where the proponents of this research reside, used to be blessed with beautiful and clean rivers and lush green mountains. The province itself, Palawan, has been dubbed the country's "last frontier". Some environmental problems however, started occurring in the last decade when metal mining companies were given permits to operate in Southern part of Palawan. NGOs and people's organizations were vocal about their position against mining in Palawan. Little attention, however, is given on the problems brought by excessive extraction of sand and gravel in rivers in many parts of the province and in the city. As a matter of fact, the proponent has observed that the rivers flowing by the habitation of Batak, an indigenous community living Sitio Lipso in Barangay Maoyon, Sitio Kalakwasan in Barangay Tanabag and Sitio Mangapin in Barangay Langogan, northern part of Puerto Princesa City, are experiencing river destruction due to excessive

sand and gravel quarrying being conducted by companies who, according to barangay officials have permits to operate.

Eder (1993), declared that the Batak is a disappearing tribe, and listed in Headland (2003) among the thirty critically endangered language groups in the Philippines. As of 2000, the Batak population, according to the City Planning Office (City of Puerto Princesa) was 293, with 149 males and 144 females while the 2010 census identified 416 Batak spread out in different valleys in Northern part of Puerto Princesa City but this figure includes the children of mixed marriages between a Batak and another ethnic group. Currently, about 47 households reside in Mangapin Valley, in Barangay Langogan. The Batak in the community have lived a relatively simple and peaceful life despite strong language contacts and threats of intermarriage and migration. Just recently however, quarrying activities near the Batak habitation have existed which engage the Batak as workers. Drawing from the “resilience framework”, the Batak people’s ability ‘to bounce back’ from an economic disturbance and the resulting behavior which may impact environment and their own safety, have been examined. Further, the Batak people’s perceptions of the impact of engagement in quarrying to their economy, environment and safety, were identified.

The present study aims to respond to the dearth in research on the impact of excessive sand mining on the life of the indigenous group.

Specifically, the present study aimed to answer the following questions:

1. What are the threats on sand and gravel extraction on the following:
 - a. Economic
 - b. Environmental and
 - c. Health of the Batak, a highly threatened linguistic minority group in Palawan?

2. How do the people exhibit resilience in the face of economic, environmental and health threats in their engagement in small scale sand mining?

[(Arial, normal, 10 font, justified) (Detailed instruction about this section is given below. After reading these instructions, please delete this paragraph and begin typing your text here. If you are using copy-paste option then select ‘match destination formatting’ in paste option OR use ‘paste special’ option and select ‘unformatted Unicode text’ option).

Provide a factual background, clearly defined problem, proposed solution, a brief literature survey and the scope and justification of the work done.]

2. METHODOLOGY

The present study made use of descriptive qualitative design. The Mangapin Valley in Langogan, North of Puerto Princesa is one of the eight valleys originally inhabited by the Batak. Sitio Mangapin can be reached by taking a motorcycle from the national highway to Sitio Macandring. Sitio Macandring is nine kilometers away from the Langogan proper. From Macandring, one has to make a four-kilometer walk with four river crossings to reach Mangapin. Currently, this Batak community has around forty seven households.

Data were collected between January to June of 2019 from the Batak men and women of Mangapin Valley. About 18 couples were engaged in quarrying between January to March 2019. Nine men and seven women representing the couples were interviewed in March. Starting April, only eight couples remained in the area who were directly engaged in the quarrying. These eight couples were interviewed by pair individually in June of the same year. The elders of Mangapin served as informants during focus group discussions. Apart from interviews, observation of the couples as they engaged in quarrying were conducted from January to June.

3. RESULTS AND DISCUSSION

This section discusses the findings from interviews and FGDs conducted within the six-month period.

3.1. Reasons for Batak people's engagement in small-scale sand mining

For the longest time, the Batak have been greatly dependent on almaciga and honey gathering, wild pig hunting and subsistence rice farming. Since honey is seasonal in nature and wild pigs no longer abound in the area, only almaciga gathering has been retained as the source of people's livelihood. Subsistence rice farming takes place once in every year and the Batak have difficulty engaging in it because of the implementation of law against 'kaingin'.

According to the males, almaciga gathering is a very difficult task since it takes half day to reach the area of work. Normally the males have to live in the area for weeks to gather the resin. When the sacks are full, each male will carry on his back about 40 to 50 kilos of resin and walk for hours until they reach the river where they will transport the sacks of resin through balsa. A kilo of resin costs Php 18 pesos. A sack therefore would cost about a thousand pesos. A hardworking male in his twenties will normally make five sacks in a month but this does not happen monthly since it takes a few months to be able to collect resins from trees again. A male therefore, works for two months and rest for the succeeding two to three months after the resins have been sold. During the lean months, the males may either hunt wild pigs or make mats. Honey gathering takes place only between March to June while planting can be done only between June to September which is the rainy season. The Batak buy rice sold in the locality for Php 45 to 50 pesos. Only few have planted palay this year because of government's restrictions.

Admittedly, the families that engaged in quarry in January to March are those who are resting from gathering almaciga. Since the honey is in season, the males had left the quarry and opted to gather honey and almaciga at the same time. The males in these families are the relatively young, those in their twenties and thirties and are healthy.

Five of the eight males who have remained in the quarry until now have history of tuberculosis or pneumonia, which were acquired when they were younger and were gathering almaciga. According to them, they were advised by the doctor not to engage in heavy work again. The presence of quarry gave these men an option.

3.1.1. Income derived from quarrying

The families are not hired by any company for their services. Their earnings come from the sacks of pure sand which they sell for Php 5 per bag (cement bag). Downtown, each bag of sand is normally sold for Php 35 pesos. A Batak male has to work for three to four days to be able to fill 100 bags to earn 500 pesos. The earnings will normally go to 10 kilos of rice with some sugar and coffee and other very basic needs. When asked whether they can still purchase goods for viand, they reported that this happens only at very rare times since the money is almost just enough for 10 kilos of rice. Most of the time, families depend on rootcrops and vegetables around them for viand and when there is no rice anymore, the main food will be boiled unripe bananas from morning to evening.



Fig 1: A Batak woman at the quarrying site.

The Php 500 earning weekly, normally lasts between three to five days depending on the number of children living with parents. The wife normally helps the husband in the area by putting the purified sand into the sacks or even by screening the sand themselves but it is really the husband that does most of the work. Putting together, a couple will earn no more than Php 2,000 pesos a month which is relatively lower than what they earn when they were still gathering almaciga resins.

Quarrying therefore, does not have much a positive impact on their life for what they earn at present is hardly enough for a living but a better option than seeing their children go hungry. A few of the males interviewed said:

Excerpt 1. Konting tulong lang po ang naibibigay ng pagkwa-quarry. Kung may ibang hanapbuhay lang po, mas gugustuhin kong iba na lang. A hirap ng buhay namin, puwede pa ba kaming mamili? [Quarrying helps a little but if there were other means of a living, I would rather be doing something else. With our poverty right now, do we have much options?]

Excerpt 2. Mahirap po ang buhay namin. Minsan wala kaming makain, saging lang. Kahit papaano, sa pag kuquarry, nakakabili kami ng bigas. Basta may makain lang ang aming mga anak, okay na. [Our life is difficult. Sometimes, we only feed on bananas. At least we earn something from quarrying so we can buy some rice. As long as we can feed our children, that's what matters to us]

Victor (2013) assessed the environmental and sociological impacts of sand mining in the Anayeri catchment and found that irrespective of the large quantity of sand being mined from the catchment with its economic importance, it is concluded that socially and environmentally, sand mining activity is causing more harm than good.

3.2. Impact of Excessive Sand Quarrying on the Environment

Since the actual quarrying started only in January 2019, the prediction of the extent of damage to the surrounding environment may not be estimated yet. Still, the Batak participants who are engaged in quarrying believe that the quarrying activity may carry negative impacts on the environment especially during heavy rains and typhoons. What the participants are afraid of is the impact of this activity to the Batak community in the future.

The quarrying site is only less than a kilometer away from the Batak habitation. According to the Batak, the DENR has allowed the extraction in the area for two years which means the operation will last until December 2020. Actual sighting of the area in the last five months (February to July) have shown considerable changes in the river. The large stones have been set aside by machines to reveal the sand which the trucks from the two trucking owners hauled to be transported outside. A good part of the area has become the work area of the Batak where they patiently cast the sand into the screener to yield pure sand which later on goes into the cement bags to be sold at Php5.00 each.



Fig 2: The sacks of sand collected by the Batak bought by trucking companies at P5.00 each

Apart from the dark water produced by the quarrying activity which flows in the river, affecting daily users (e.g. those who take a bath and wash clothes in the river), there is an obvious transformation of the natural environment since the river has widened to

accommodate the extraction of sand. What is more, while quarrying should take out only the sand on the riverbank, the machine used for extraction was sighted doing the extraction of gravel from the river itself, which is a violation already. The researcher however, did not confront the persons involved in the activity to prevent conflict and avoid possible threat to safety.

There are large holes created at the middle of the river bank which according to the Batak were formed when the stones were set aside. On the surface, the river looks like the inner layers have been altered already because the river looks muddy on the surface even when nobody is touching it. The first three river crossings where quarrying activities have taken place in the past few years (according to the people in the area), also look muddy every time.



Fig 3: One of the holes created in the river by quarrying

According to the participants, some Department of Environment and Natural Resources (DENR) people would visit once in a while but they would often stay for about five minutes and would not really come closer to examine the site. When asked whether the National Council for Indigenous Peoples (NCIP) knows about the activity, the participants reported that the NCIP has full knowledge of the activity for the NCIP personnel were present during the barangay meetings held during consultations with the local leaders of the community, which took place a few months before the quarrying activity started in January 2019.



Fig 4: The bulldozer collecting sand from the middle of the river.

When asked whether the NCIP personnel came to Mangapin to speak with the Batak community prior to the quarrying activity, to seek the members' opinion and explain the consequences of the activity to their environment, the people reported that no consultation with the general members took place. It was only the elders of the community who were called to attend the meetings in the barangay. About three meetings were called involving the elders. The members recalled that their signatures demonstrating approval of quarrying were sought.

What conditions came with the Batak community's approval of the quarrying activity?

Focus group discussions with some elders in the community yielded three conditions which prompted the community to give their approval of the quarrying activity. The first is that the community asked for a Php 200.00 share for each truck of sand hauled from the site (apart from the bags of sand bought directly from the Batak, there are trucks which regularly hauls trucks of sand and gravel from the site. The second condition is that a road will be constructed from the first river crossing to the Batak habitation to allow easy passage of motorcycles for the people. Some Batak own motorcycles to transport goods and people since the community is relatively far from the barangay proper. The third condition is that the Batak will be prioritized as workers in the quarry site.

The quarry had been in operation for about seven months but the first two conditions have not been fulfilled. According to the elders, the community has not received a single share from any of the trips since January. When they confronted the landowner, who aggressively sought their signatures prior to the commencement of the quarrying activity, the latter claimed that the company has not paid him/them yet. In the word of the participant,

Excerpt 3. "Puro utang daw kasi kaya wala pa siyang maibigay sa amin". (I have not been paid yet, hence, I can't pay you)

As to the second condition, the promised road to serve the Batak has not been built yet. The constructed road up to the quarry site was evidently built to serve the trucks. Ironically, the construction of the road going to the Batak community may take place in the future, not really to serve the Batak but the trucks that will go up near the area or on the community itself to haul more sand. Based on the observation, the riverbank in the 'untouched' portion of the river near the Batak habitation has very wide presence of smooth sand.

Madyise (2013), conducted case studies of environmental impacts of sand mining and gravel extraction in Gaborone, South Africa and found that Pit sand and gravel are extracted from open areas creating uncovered deep pits, which caused of accidents to children and livestock. Erosion and environmental degradation occur due to continuous mining. Miners dispose waste on open areas and riverbeds causing land pollution. Dust and noise pollution from tipper trucks ferrying sand and gravel are a cause of concern to villagers as the trucks move even at night, disturbing sleep.

Similarly, Pearce (2019), reporting on the global problem of unsustainable use of sand, established that the very high volume of sand being currently extracted is having a serious negative impact on rivers, deltas, and coastal and marine ecosystems, such as loss of land through river or coastal erosion, the lowering of water levels, and decreases in the amount of sediment supply (p.9), and is affecting the economic and social development as well (Torres, 2017). Further, (Filho, 2021). found that because sand is being extracted at a far greater rate than that at which it is naturally replenished, the depletion of existing sand reserves is damaging fauna and flora at significant level.

3.3 Perceived Impact of Quarrying on Worker's Health

Data from interviews showed that 100 percent of the participants believe that engagement in quarrying like what they do everyday, is not good for their health. As a matter of fact, about two of the 12 males who had engaged in quarrying in the first few months had to stop because they have acquired tuberculosis. Although they do not attribute quarrying as the main cause of TB, they admitted that their weak health because of age and lack of food, the hard work and their exposure to sand dust and extreme heat of the sun, all contributed to their current state of health. Likewise, one of the six males who have remained in the quarry site is also on medication for TB but he is still working at the time of my last interview. As of the writing of this article, one of the men who had history of tuberculosis and who was engaged in quarrying died.

The Batak wives who were interviewed admitted that they are aware of the risk they are taking for engaging in this work but since their husband cannot gather almaciga resins anymore because of their frail health, the only option left is to engage in quarrying activity. Admittedly, it is difficult but according to them, it is not as difficult as almaciga gathering. The income is a lot smaller but as they said,

"Sa pagkuwa-quarry, pwede naming matulungan ang aming asawa. Pwede kaming lumilim kung mataas ang araw at puwedeng magpahinga kung pagod na. Di man sapat ang aming

kinikita, kahit paano, pwede kaming mabuhay ng mas matagal.”(By quarrying, we can help our spouse. We can seek shelter anyway in the midday heat and rest when we get tired. Although what we earn is not enough, at least we can live longer)

Despite the health risks, all the participants believe they will still engage in quarrying unless, a better opportunity comes to them.

3.3.1 Where lies the better opportunity?

The participants were asked whether any help was offered by government agency or NGO to make their situation better. The interviewees reported that a long time ago, a few NGOs would come and offer help.

Excerpt 4. “Pero ma’am panandalian lang po ang tulong na binibigay nila. Madalas, pagkain o damit. Pagkatapos aalis na sila at di na babalik. Pakiramdam namin, ginamit lang nila kami para makakuha ng pondo sa ibang organisasyon.” (Some help come to us but they’re just temporary, oftentimes in the form of food or clothes. Then the donors will leave and never come back. We feel we’re just being used to seek funding from organizations)

Excerpt 5. “Ma’am may kilalang NGO noon na madalas bumisita sa amin maraming taon na ang nakakaraan. Nagalok ng mga proyekto tulad ng poso negro. Alam po ninyo peke sila. Makalipas ang ilang linggo, nagpapakita sila sa tabi ng poso pero po yung poso sa taas lang yun, ipinatong sa semento. Wala pong tubo sa ilalim.” [There was a known NGO before who came to us many years ago. They’re fake. They offered us a deep well. A few weeks later, they had a picture in front of a supposed deep well but it was just a picture. There’s no well down there.]

Excerpt 6. “Nung ipatupad ng gobyerno ang batas laban sa pagkakaingin, marami sa amin ang hindi na nagtatanim sa takot namin na hulihin kami. Nakapagtanim ang ilan sa amin pero di na kagaya ng dati. Madalas bumibili kami ng bigas sa ibaba na napakamahal para lang me makain. Yun ay kung may pambili kami.” [When the government implemented the law against “kaingin”, many of us no longer engage in rice farming because of our fear to be apprehended. Some of us still plant but very rarely. Oftentimes, we just buy rice but these are very expensive; that is, if we have the money to buy]

When asked whether they an agency offered another option for a living such as farming, the participants in unison said they do not recall any agency visiting them, asking them if they are all right or offering alternative source of livelihood. When asked what kind of help would the Batak wish the government could extend them, about two couples maintained that they need food and medicines but a greater majority from both young and old couples asserted

that they need a better source of livelihood. About 85 percent of the females said that they wish they could create gardens near their homes so they can help their husband.

Excerpt 7. “Ma’am sana mabigyan kami ng gobyerno ng itanim. Yung pwede naming pagkakitaan tulad ng mais at gulay. “ [We wish the government would give us seedlings of plants which we can sell later such as corn and vegetables]

A few of the males reported that they need to learn more skills on farming and wish they could receive farming tools and seeds from the government.

4. CONCLUSION AND RECOMMENDATIONS

Based on the foregoing analyses, the present study concludes that the Batak are aware that the small economic benefits they acquire from participation in the quarrying do not outweigh the potential environment and health risks the community is exposed to in their engagement to this kind of work. The people’s ability to survive despite hunger, disease, low morale and physical deprivation and lack of government support, is a demonstration of individual and community resilience.

Despite the Batak people’s demonstration of resilience from adversity, the fact remains that this marginalized group has not been given by the government the attention the people deserve, whether it is health, economic or environmental aspect.

To reduce the possible risks to environment and safety of the people, the present study recommends intervention from the following agencies:

Firstly, the Department of Environment and Natural Resources (DENR) and Palawan Council for Sustainable Development Services (PCSDS) should implement strict monitoring of the area to ensure that the extent of quarrying activity does not exceed the level allowed by law. Where necessary, these agencies should put a stop to environmental degradation posed by quarrying.

Secondly, the National Council for Indigenous Peoples (NCIP) should move to protect the welfare of the Batak. In the first place, it should ensure that conditions or agreements between the owners of the haul trucks, the landowner and the Batak community are followed and breach of such agreements could mean cessation of the operation.

Thirdly, the LGU should ensure that the rights of the Batak, the most economically underprivileged minority group in Palawan, who is currently critically endangered, are upheld

and protected. This agency should examine whether there is a need to stop the quarrying operation in the area, for it may pose potential threat to the lives of the Batak.

Fourthly, the city government is largely responsible in bringing government agencies closer to indigenous community like the Batak. The people will not be forced to engage in quarrying activities and endanger their health had the government been providing job which offer better earnings and safety. One serious environmental concern of the Batak community in Sitio Mangapin in Barangay Langogan is the destruction caused by excessive sand and gravel extraction by companies. As the population continues to increase, there will be an increase in demand for goods such as gravel and sand. The government therefore, should find better ways to ensure fair and lawful use of this natural resource of the earth while protecting the rights and welfare of indigenous peoples whose lives are attached to river.

Finally, the academe, has a very important role in raising people's awareness of the rights and duties governing the use and protection of natural resources. To be specific, the 1987 Philippine Constitution, under Article II, Section 16 of the 1987 Constitution, stipulates that the State is expressly mandated to "protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature." Also, Section 16 of Republic Act No. 7160: r, specifically enjoins local government units to "promote health and safety, enhance the right of the people to a balanced ecology," and "preserve the comfort and convenience of the inhabitants" within their respective localities.

Being the most important arm in nation building, schools should provide opportunities for students to absorb not only the knowledge of laws, the people's rights and duties but more importantly, imbibe virtues which will enable them to be citizens who truly care for the environment and who safeguard the welfare of their countrymen, mindful that sustainable development can only take place where there is equitable sharing of natural resources and where users allow resources to replenish for future use.

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