Illegal artisanal and small-scale mining practices: re-thinking the harm

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Abstract. Illegal and small-scale mining that occurs is often only seen as legal practices. Consequently, the government's response towards it is more repressive ways, even negligent. This paper suggests another perspective in understanding these practices, especially in questioning who or what has been harmed, how and why it happened this way. Findings found that the concept of environment, including environmental damage, is a social construction that can be selected and filtered by the public, to determine which ones will be raised and become an important issue in the public. Although the detrimental effects of illegal mining are evident both socially and environmentally, there are social processes (interpretation and contestation) involved in determining the definition, scale, impact, and risk. Talking about why to this day illegal mining cases still occur and tend to be ignored is because basically the definition of environmental harm is a matter of social construction and is openly interpreted and contested by the definition.

1. Introduction

The environment is seen by humans as more than just an ecological entity. The existence of humans makes the environment is also social. Referring to the case studies raised through this research, this opinion is at least illustrated by the massive small-scale mining practices carried out in Indonesia and on a global scale, where activities are often initiated by an economic orientation and neglected the impacts on the environment, such as mercury contamination in regional flows rivers due to gold mining activities in several areas in Central Java (Barkdull, Carling, Rey, & Yudiantoro, 2019). The possession of thinking in humans is the basis reason for humans to take the role and provide the most significant impact on the existence of the environment. Because humans have interactions and even dependence on the environment, regulations regarding the environment exist.

Environmental pollution and destruction occur on a large scale. The existence of environmental regulations thus is present in the condition of a \textit{tug-of-war} between today's human survival and future generations. The existence of pressure for the environment to be able to ‘provide’ what is currently believed to be human needs, is a logical reason that should be able to explain this reality. Once again, the practice of
illegal mining is one proof of this fact, where many rural communities are engaged in this work to improve their economic conditions (Ayers & Forsyth, 2009).

The practice of small-scale mining that occurs is generally carried out illegally and the operations are far from set industry standards. Also, the exploitation process from mining activities has brought environmental impacts, including degradation of soil structure, degrading to water resources and acid drainage, residual solid waste, radiation, damage to habitat and biodiversity, and soil erosion (Armah, Luginaah, & Odoi, 2013). Mining waste can also have other environmental impacts. Moreover, the use of mercury in gold mines, especially in the refining process, has become a practice that is identical to this case. Environmental damage and pollution as well as health problems caused by mercury are inevitable impacts. The United Nations states that the small-scale mining sector is the largest source of mercury emissions in the world, as much as 1,000 tons per year, or the equivalent of 40% of the world's total (Casey, 2019). Mercury that is released into the environment can cause an imbalance in the ecosystem.

Regardless of its environmental impact, and its illegal status, these practices tend to be ignored by the government (Azkia, 2018). The subsequent omission forced the miners and other operators to operate independently, are not based on the principle of sustainable mining, had no work organization or economic organization, and shows low expertise. This in turn forms an endless causal relationship that is detrimental, especially for miners and the environment.

2. Key Findings on Illegal Artisanal and Small-Scale Mining Practices

Artisanal or small-scale mining is a mining practice carried out by a small number of person or groups, with minimum or no use of machines, often done illegally (Hentschel, Hruschka, & Priester, 2003; Starke, 2016). The vast majority of workers belong to the lower economic class, exploiting marginal deposits in abusive ways, often in dangerous conditions, and with considerable environmental impact. This is in line with findings from a study in Congo, where most of the workers are very poor, who seldom wear helmets or other personal protective equipment while operating (Lindberg and Anderson, 2019). On the other hand, this job provides an opportunity to improve economic conditions in a relatively short time (Hilson & Potter, 2003).

Apart from the contribution generated from mining practices, many parties - the government, environmentalists, and agriculture practitioners - actually prohibit its existence. Apart from the fact that mining operators are believed to be involved because of the motivation to get rich quickly, other concerns relating to the loss of biodiversity, land degradation, hazardous substance contamination, inadequate security, and safety aspects, air and water pollution, and child labour issues (Akabzaa et al, 2007; Ofose-Mensah, 2010). One of the evidence can be identified from a study that estimates that as many as 100,000 to 200,000 people in Indonesia suffer from mercury poisoning, and as many as 10,000 to 20,000 children experience physical disabilities due to mercury exposure during pregnancy (Paddock 2016).

The state's response to the illegal artisanal and small-scale mining, in general, seems to have been ignored (Azkia, 2018) or in the context of Ghana, they tend to ignore the importance of the role of poverty, joblessness, and lack of agricultural land in perpetuating this sector (Afriyie, 2016). The government's tendency to focus more on 'opportunism discourse' and ignore the root problems, then reflects how efforts to overcome them depart from the most likely way provided by the government. For example, providing opportunities to reduce unemployment and poverty rates is considered far more difficult than using state power which is much cheaper and ready to be mobilized at any time. This explains why the state's response focuses more on criminalization efforts, intense policing, and the use of state power in other forms. In other words, the agencies in charge of dealing with these problems, have been involved in efforts whereby they develop and define predefined problems, types of problems that require certain specific solutions that they are interested in providing. In the context of small-scale mining in West Nusa Tenggara, Indonesia, Adi &
Zuhairi (2016) elaborated how the local government policy of West Lombok was issued for regulating this practice as a more political rather than part of its development policy. It is an effort to reduce horizontal and vertical conflict versus the economic prospect. The conflict was widespread and has had implications in decreasing or delaying investment in various sectors and especially influence the tourism sector (as one of the leading sectors). In other words, for what the local government considers as a bigger interest and regional security, they forced this very type of policy.

3. Discussion

Determining certain activities or practices to be harmful to the environment, is based on what the public thinks can gain social attention. Environmental crimes or environmental harm that often appear in public are always constructed through a social selection and validation process. The objective harm does exist, but which cases of environmental harm will gain public attention is depend on how information, opinion, and awareness are mobilized. White & Heckenberg (2014) explains that how environmental problems are socially constructed cannot be separated from subjective and objective elements. They divided the views into two; first, realism refers to a view that sees the 'natural environment' as an entity existing in its own right. Environmental problems are ascribed to what actually occurs in the environment itself. Second, constructionism refers to a view that sees 'natural environment' as a social construction, as something that will always be constructed according to the human culture that filters, selects and categorize the natural environment in the human world. Environmental problems are seen as problems that are limited by what humans think is important or significant to their lives.

From these perspectives, the authors argue that the second perspective is more appropriate concerning the case of illegal mining. Whereas furthermore, Hannigan in White & Heckenberg (2014) argues that the study of environmental problems is based on real problems; however, this problem becomes a social problem as a product of the dynamics process of definition, negotiation, and legitimacy. The problems are real, but the definition, scale, risk, impact and origin of the phenomenon tend to be open to interpretation and contestation.

This can be illustrated through environmental issues that occur in the world, where some issues tend to be better known than others. State intervention and social movements that are encouraged on these more familiar issues illustrate how they are considered important enough to elicit a broad social response. In other words, what stands out as a social issue reflects how the social process of claim is brought to the public domain and has a 'position' in the public eyes (White & Heckenberg, 2014).

3.1. Eco-philosophy and its way in explaining environmental harm

Green criminology at least focuses on three philosophical perspectives that further underlie the definition of crime and the various ways to understand the victimization of humans, specific natural ecosystem, and non-human animals. In this paper, the author will only focus on anthropocentric and ecocentric perspectives. The former perspective sees existing (natural) resources as a means of satisfying human needs and that the method used in production are those that incur the lowest costs for producers. Legislation from this perspective is aimed at facilitating the extraction and processing of resources; conservation of certain natural resources; as well as resolving conflicts that may occur between the actors involved. This perspective is a reflection of what happened in the case of illegal mining, especially when viewed from the perspective of the actors and operators involved as perpetrators.

Meanwhile, the latter perspective seeks to find a balance between the use of existing resources for long-term human survival and the need to develop regulations that can facilitate the use of the environmentally friendly method in utilizing natural resources. Legislation according to this perspective exists as a limitation on the use of ecology (of which humans are an integral part of it). This perspective tries to advocate the
production methods which are oriented towards the long-term sustainability of ecosystems, not short-term economic demands. With the case of illegal mining, this perspective is deemed to be able to ideally accommodate how to initiate interventions for the stakeholders. To define illegal mining cases in a more detailed way, the authors adopt White’s tool to categorizing environmental harm, as present in Table 1.

| Focal considerations | Environmental justice (human) | Ecological justice (eco-system) | Species justice (non-human animals) |
|----------------------|------------------------------|-------------------------------|-----------------------------------|
| Geographical considerations | Identify issues pertaining to geographical level | International | National | Regional/state level |
| Locational considerations | Identify issues pertaining to specific kinds of sites | ‘Built’ environment | ‘Natural’ environment |
| Temporal consideration | Identify issues pertaining to changes over time | Environmental effects (short/long-term) | Environmental impact (manifest/latent) | Social impact (immediate/lasting) |

Although the four factors above will make it easier for researchers to categorize environmental harm, another weighing factor that is no less important is related to the transference of harm across space and time. This factor considers how harm can be transferred either over time or from one place to another. For that, it is important to understand risk (harm) as something dynamic, not something permanent.

Illegal mining practices can be categorized as environmental harm practices, which when associated with the concept of justice can be categorized as ecological justice. The real disadvantage is felt by miners who are structurally forced to continue to do this work and are exposed to mercury, including the biotic environment around the exploited mining area. Soil and river water that is directly contaminated with these harmful substances are certainly no longer healthy habitats for the plants and animals that originally lived. Not only was the rights for the surrounding community and the miners to live a healthy life that was injured, but also the rights for the ecosystem and the living things that lived in it to continue to live, is also violated.

Harm arising from this illegal practice does not only occur in its original location because the river which is used as the location for gold ore processing is also contaminated. The river flows downstream so the harm caused is also widespread, with long-term effects that nobody knows for sure how vast is the impact. These practices may engender a cumulative effect on the watershed which has an impact on the aquatic life, the toxins contained in the water may be consumed by fish and other creatures that live around it, and this will certainly have a huge social impact on fishermen and humans as the consumer of the fish.

In the end, the harms arising from illegal artisanal and small scale mining practices are clearly impacted the social and economic aspects of the miners or mine operators, surrounding communities, and even fishing communities as well as the group of consumers who consume seafood, and the ecological aspect of the local habitat, flora, and fauna, the wider ecosystem (rivers). However, the response of the state which tends to neglect and ignore the factors that perpetuate this practice, reflect how this issue is not sufficiently defined as 'important' by the authorities to obtain a broad social response and put into position in the public sphere,
thus implying weak measures of effective solutions to be taken. In other words, there is a construction definition process that tends to be impartial to the parties and entities that are disadvantaged by this practice.

4. Conclusion

The definition of illegal mining practices that are extrinsically categorized as legally unlawful practices, seems unable to explain this phenomenon holistically. This paper briefly describes how intended practices should be understood and analyzed. The natural environment is seen as a social construction, which will always be constructed according to the human culture that filters, selects, and categorizes them. Environmental problems, including environmental harm, are seen as problems that are limited by what humans think is important or significant to their lives. For this reason, this view can sometimes be subjective for some groups of people, especially for those who have the power to control what needs to be highlighted in public and what does not.

Concerning the harm caused by this practice, the actors involved in mining practices still view that exploitation of the environment as a means to gain economic benefits. This is related to an anthropocentric philosophical point of view, which is studied by humans and continuously transferred and applied in everyday life, not only by the actors involved but also by local policymakers. Consequently, the harm of this practice, which is dynamic, is constantly moving from its original location to other locations, including the risks it carries.

Question of why to this day illegal mining cases still occur and tend to be ignored is because basically the definition of environmental harm is a matter of social construction and is openly interpreted and contested by the definition. If according to those who have control, this phenomenon is not "important" enough to be exposed to the public, then this practice will continue and be perpetuated. For this reason, this paper suggests the importance of rethinking the definition beyond its legal definition, by socially considering various important factors, especially for stakeholders involved in this phenomenon.

Acknowledgments

The author would like to thank reviewers; Irma Novilda, Agus Rudiyono and Yulia Agnes for the constructive suggestions on how to improve the manuscript. This research has received funding from Universitas Indonesia, through Hibah Riset Publikasi Terindeks Internasional (PUTI) Sosial Humaniora (Soshum) - Direktorat Riset dan Pengembangan Universitas Indonesia 2020 with contract number NKB-2570/UN2.RST/HKP.05.00/2020.

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