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Dilemma of mining: economic development and ecological risks

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Abstract. This study aims to look at the anthropocentric and ecocentric ethical debate in viewing environmental degradation that occurs. Sustainable development is expected to be a solution to environmental degradation and human interests, but ongoing development does not have a significant improvement in environmental conditions. Based on the results of research conducted on communities around the South Sulawesi mine, the conception of development to meet human needs is then faced with the reality of natural damage that has the potential to threaten the sustainability of human life. Therefore, ecocentric ethics arises with the offer of equilibrium development or zero growth because, growth and distribution of human population will certainly have an impact on the environment, so environmental degradation can only be resolved through this concept but at the same time it will bring consequences to the meaning of the sustainability of development itself which still needs growth as an important thing in meeting the increasing human needs.

1. Introduction

The growth and deployment of human population is increasing all the time. It is increase various human needs trend, including foodstuffs and land for residence. It then demands efforts where encourages need for development to meet it. However, at the same time it seems bring unexpected effect related to the environmental aspect. The various of development activities seems have driven rapid degradation of environment which is basically place of human existence. The development seems became potential challenge for environment where also related to the human life.

Various forms of development so far tend to interpreted based on economic benefit. Development activity dominantly directed to maximize economic values. Various potential economic benefits then motivate humans to maximize every resource in nature. Various forms of development including nature extraction become massively that consider brings potential harmful to environment condition. Some research showed the environmental degradation caused by development activities that ultimately endanger human life [1].



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Various Environmental problems that occurred were environmental pollution as result of massive use of pesticides in 1962. It was resulted emergence of disease and animal death on large scale. That was a worse condition even, the pesticides were used to increased agricultural production by effort to fight the potential damage of the agricultural crops [2]. Another thing that has raised world awareness of environmental degradation was triggered by the Tragedy of Common that wrote by Garret Hardin's in 1968. In addition, a report carried out by a team entitled Limited to grow in 1972 also showed the projections of human extinction if the environmental degradation still running without any improvement to control it immediately [3].

Those conditions become the first milestone for new view on the environment position related to development efforts. The awareness of international community then increasingly on environmental condition after the Brundtland Commission that was commissioned by United Nations released report "Our Common Future" in 1987. The report showed how various development activities in many countries have affected negatively to environmental conditions. Based on this circumstance, the commission introducing the concept of sustainable development. As a new concept, it seeks to collaborate economic development by placing environment as important aspect to be considers. Thru that concept, development activities believe will not affect environment negatively within the development process. But until years after the Report released, the environmental degradation continuously occurs. This condition then separates humans in two polar of debates about how environment should be viewed.

At the first polar humans are the main and dominant entity while nature is created only as supported resource to feed their needs. This side usually called as the anthropocentric. At the other side, the echo centric, viewed humans and nature equal and should interact in mutual respect. It means the utilization of nature must not overexploitation even it desires to feed people needs due to environment has its common values. The utilizing of nature resources should follow by efforts to maintain environment proportionally. The environment existence must be respected in various development activities including the mining activities.

Mining activities basically are activities to take existing mineral deposits from land. So far, the amount of mineral resources deposited and the level of need as well as desired of profit determines frequency of mining activities. It processes potentially become factor that harmful environment where it potentially affected biodiversity, water resources, landscapes and various natural resources negatively. Practically, all mining activities imply major interventions on vegetation or preventing nature regeneration. In many situations, soil surfaces with high fertility will be affected or even lost. The remaining soil condition will experience erosion and disturb the condition and quality of the surrounding environment including the quality of the water, air pollution from particles suspended from activity, from repairs and transportation, or by gases released by burning fuel. Others impact are related to noise, acoustic pressure and vibration in operation of mining equipment and explosives [4].

Those conditions will certainly affected others activities such as agriculture and plantations as well as disrupting the people's life related the natural surroundings. Moreover, mining activities tend to result inconvenience not only to people around mining activities but also potentially disrupt others in long term [5]. Therefore, lack attention to mining effects will affect the environment which in the long term will affect it function as important part for earth. But even so, mining is still as important activity to the utilized various minerals for human needs. It made a dilemma on mining as important development process to supply human need and the environmental risk followed it.

It then seems provides only two choices. Continuing the development with its bias on economic benefits thru various activities including mining process or placing the development in balanced context with environment thru the zero-growth way.

2. Methodology

This paper analysis based on the results of qualitative research data that was conducted during April and May 2018 about phenomena in one of mining activity in South Sulawesi, Indonesia. The data from this field then using as the entry point to analysis the tendency of the mining activities that tends to operate under the economic reasons while in the same time it affects to the environment condition. As one of main profitable activities for the economic reason as well as believe as activity that also brings prosperity for the people, a mining activity will operate continuously which means will always potentially affect environment. But in other hand, it also followed by potentiality to harm environment condition which finally will endanger people life when it still operates overexploitation without any consideration to environment ethics equally.

3. Result and discussion

3.1. Tendency of environmental degradation and the mining activities

Generally, development can be interpreted as comprehensive effort to bring better life for all aspects of people's life. However, so far development partially understood regarding economic benefit including mining activities. Development then indirectly has ruled out of other aspects which are also important such as environmental and social aspects [5]. It is basically not a new thing, due to since beginning it showed so. That trend can be traced during the industrial revolution in 1760. It was contributed to lift economic income while population began to grow as well as increased the human life standard [6].

During that time there was a change in the way of human life where technology replace human labor that provide life convenience for people but in the same time consider has effect to threat environmental endurance. It can be seen from situation where people switched from using firewood to coal which resulted environmental degradation [7]. The use of coal as fuel is resulted smog that caused 4000 deaths in London. Another environmental degradation emerged was the increase of chemicals consumption which caused pollution in European rivers [7].

Years later, various conditions of environmental degradation seem to have prompted emergence of awareness to environment that were degraded by increasing of technology, industry, economic expansion and population growth. The awareness was formed after the publication of two books that explain the serious threat of use of pesticides on public health by Rachel Carson entitled "Silent Spring" in 1962. In 1968, Paul Enrich published a book The Population Bomb which warned that human population growth would have negative impact on human life sustainability. In addition, the Club Roma report "The Limits to Growth" and Garret Hardin's writings on "The Tragedy of Common" also shows similar condition on environment. These conditions overshadow the dynamics of human life, including the mining activities which are currently one of the most profitable industries in the world [8].

As an effort to utilize natural resources, mining activity basically is not new. This activity could be traced since the Neolithic era where was intended to obtain metals to support various equipment needed by people [9]. In Classical Greece and the Roman Empire, various mines were exploited for iron, tin, copper, gold and other metals. On it progress mining has expanded and increased the amount of fossil fuels (e.g. coal) and metals (e.g. iron) extracted in general quantities commensurate with available the human labor for centuries. It increasing significantly where various technological form invented especially explosives and machinery, mining activities then develop further in the 19th century and even more rapidly during the 20th century [9].

Nowadays the development of mining sector, has entered into many areas that might have never been thought before such as in the polar regions and the deep sea, especially for oil, natural gas, and metals [9]. This condition shows that from time to time mining activities continue to show extraordinary escalation

which is caused by the continued of human needs and its potential benefits. Thus, many countries strive to be able to develop mining sector continuously including in Indonesia.

As country with rich of minerals, Indonesia has opportunity to enjoy the benefits from this sector. In its economic development the mining industry in Indonesia has become vital sector [10]. Therefore, with enthusiasm to maximize the existing materials to fulfillment humans needs, mining activities are continuing as one of strategic development. Various usual activities in mining industry will continuously runs, due to Indonesian seeks to maximize ownership of various minerals through mining activities [11]. It then becomes potential threat to environment conditions which will also affecting people lives. This situation basically raises dilemmatic situation. In one hand, the need for minerals to supply various industries and its financial income is important. It means mining activities is a logical choice to do, but on the other hand it potentially threats environmental condition.

Although Indonesian government has tried to regulate mining sector by consider environmental aspects, but environmental degradation is still occurred. This condition seems related to the development of green mining policies in Indonesia considered too slow that allow this sector making large investments more than effort to prevent various problems of it [10]. It confirms that although there are efforts to internalize environmental values through the sustainable development concept in mining activity, it remains still under the anthropocentric view. Even so, it is seems considered as indicator of increasing of environment awareness. But, when it deeply analyzes, tendency to prioritize the mineral extraction while environmental conditions will consider as far as it does not interfere humans interests. It then indicated ineffective effort to dodge environmental degradation. It because mining activities precisely is a human desire to drive economic growth. Since the growth become one indicator for successfully development then various efforts conducted to utilize profit of mining activities even though it endangers environment conditions. If it still occurs, the report about potentiality threat due to environmental degradation is only a matter of time. Various parties then pushed related to importance of more fundamental actions in curbing the rate of environmental degradation.

3.2. Economic growth and important to reduce its risks to environmental condition

Although various efforts have been made by countries to pay attention to environment, but it seems has not any encourage result that encourages international awareness. Thru works of the World Commission on Environmental and Development which published the Our Common Future in 1987, international community asked to shared responsibility between the developed and developing countries. Developing countries are responsible for degradation of forests, wetlands, grasslands and coastal zones to meet basic needs. On the other hand, developed countries contribute to the disproportionate amount of waste that becomes emissions to air and water [12].

The Commission then introduced conception of the sustainable development as an effort to bridge the human and environmental interests. Under this concept, development can be done to meet the current generation needs without reducing the ability of future generation's needs. This concept then requires effort to integrate economic, social and environmental aspects. In this point, all form development carried should not be separated from those three aspects. But at its implementation, many countries seem still focus more on the economic sector compared to the environmental and social sectors [13]. It seems reinforced by conception of sustainability which connoted as concept to improve a healthy, ecological and social economic system for human development. These conditions indicate that from the beginning the meaning of sustainable development concept was attached under anthropocentric view. In this view, nature is only human habitat that has no intrinsic value or its own rights [14].

That views seems as basis of current economic growth paradigm where also happen in mining sector including in developing countries. They tend to look natural resources in classical perspective, especially the policy makers who always strive to achieve the goal of comparative advantage in context of trade

including at the international level [15]. Mining industry is still as one of main sectors to pursue economic growth and financial aspect. This has unwittingly encouraged and accelerated the depletion of natural resources [16]. Fact where natural resources are decreasing indicates that these conditions and functions are declining. In other words, the environmental degradation is becoming increasingly apparent.

However, continued human needs of various mineral mines continue to encourage massive mining activities. Thus, efforts to preserve environment so far seems only to restrain the rate of environmental damage not to stop it. As long as people needs increase the efforts to fulfill it will always continue. Without serious efforts, basically our world is heading to disaster. Therefore, the anthropocentric asked to the mining activities to always to notice environmental condition. But in this framework, environment placed under the anthropocentric desires to meet human needs that increase continuously. It makes efforts to preserve environment condition are not based on the understanding that environment has its intrinsic value, but based on it potentially endanger human life. It means environment is still placed only as supporting aspect where its existence will be related to how humans want to place it.

On the other hand, echo centric view that the degradation can only resolved if humans foster awareness as part it, thus humans must be able to follow ecological laws [16]. For this reason, echo centric requires that desire to explore nature must be ensured not to disturb natural and respect to it context and recovery abilities. Thus, development activities that assumed as the root of the problem must be placed in Equilibrium position with the natural context. Development activities and environmental conditions must balance at the point where environmental conditions will not degraded although development still continue [3]. It then encourages some people to think about the necessity of zero growth point in development. This concept belief that by controlling economic growth environmental damage can be controlled too [17].

However, the concept receives many objections because it is part of human living systems [18]. Without the growth, the systems will not run well especially in the recent capitalist system that aims to accumulated capital through natural resource extraction. So, when zero growth is implemented, the economic growth certainly not in appropriate to the trends. This situation places anthropocentric and echo centric sides in debate that seems absence of appropriate solution. There is always desire to pursue economic growth, but on the other hand these efforts are jeopardize environment thru massive capital accumulation where mining activity is one of them. However, these conditions actually still have possibility to be brought together thru controlled the economic growth where it does not harmful environmental aspects.

If growth controlled by reducing production and consumption then economic development should under social control, that is, where we discuss, decide, plan, and regulate to produce stable quantity of needs for their life. It could work if it is placed in equal frame. Although it seems not suitable to the current trend of economic growth, but environmental degradation should be a warning to act immediately [18]. The concept of sustainable development actually a good offer, but it should consider environment in equal way to humans needs.

The sustainable development with equal environmental position possibly became solution between two development versus zero growth debates. It asked a combination parameter the human needs with environmental risk. The environmental condition should internalize costs of degradation in economic development activities. It believed could protected environment from potentially of irreplaceable [19]. That is urgent due to the effect will not only be felt by the current generation but also future generations.

In this point, mining activities must be immediately aware of the various negative potentials of its operations. It means mining activities will certainly continue but must internalize the environmental values. Moreover, the exploitation of minerals on earth is not only needed by present generations but also the future generation. Therefore, it needs a shared responsibility of world community. Willingness to put

growth in equivalent position with necessity to protect environmental aspect, humans could still meet their needs while also able to enjoy life in a sustainable environmental ecosystem.

4. Conclusion

Environmental degradation has threatened the existence of humans and the environment. Through various development activities including mining activities, environmental conditions tend to be threatened due to strong efforts to pursue economic growth. If it continues, it is possible that soon various disasters caused by environmental degradation will impacted people life. For this reason, the resolution can be seen in two proportional views, the anthropocentric and echo centric perspectives. The anthropocentric offering sustainable development that integrates economic, social and environment into development. However, the current trend of the concept must get some improvement, especially by internalizing environmental values further into the logic of growth. Thus, growth can always be controlled in a balanced manner with the context and environmental conditions. In this case the echo centric point of view offers growth which is controlled through zero growth.

However, these concepts seem difficult to be implemented fundamentally, but improving the conception of growth in the context of the environment can still be done through balanced control (equilibrium) between growth contributed by through mining activities with natural conditions on the substance of its existence and function. Therefore, equality in placing human needs and the existence of the environment is the key to success in solve this condition. It means, the conception of growth is pursued not only under economic aspect but also with consider sustainability of environment equally for present and next generations.

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