

Implementation Of Mining Exploration Activities And The Implication On Bioremediation Case In Rokan Riau Block In Legal Perspectives

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Abstract: The purpose of this study was to find out about how to implement and what the implications of mining exploration activities in Indonesia are in a legal perspective with case study at PT. Chevron Pacific Indonesia (PT CPI). In this study, the legal aspects of mining used are Article 1 of the Law concerning Mineral and Coal Mining in 2009 relating to, and aspects of environmental law used are Article 40 paragraph (1), Article 59 Paragraph (4), Article 95 Paragraph (1), Article 102 of Law Number 32 Year 2009 concerning Environmental Protection and Management, Article 33 paragraph (3) of the 1945 Constitution and Decision of the Constitutional Court Number 18/PUU-XII/2014 concerning Testing Article 59 Paragraph (4), Article 95 Paragraph (1), and Article 102 of Law Number 32 of 2009 concerning Protection and Management of the Environment according to the 1945 Constitution of the Republic of Indonesia and international legal instruments relating to the environment. This research uses normative juridical methods and qualitative data and the nature of this research is descriptive. Based on the results of this study, it can be seen that the implementation of mining exploration activities by PT. CPI tends to have negative implications, environmental damage in the Block Rokan Riau Region.

Keywords: mining exploration, mining law, environmental law, environmental damage.

1. INTRODUCTION

MINING exploration activities that have developed into the mining industry are one of the oldest documented types of human activity, and humanity to date has benefited from natural resources that are the property of the earth (Dubiński, 2013). Then, natural resources that have been mined, mineral extraction makes an important contribution to national development and prosperity (Wrighton, Bee & Mankelow, 2014; Dubiński, 2013). Furthermore, the European Bank for Reconstruction and Development - EBRD as outlined in the Executive Summary, EBRD Extractive Mining Industries Strategy 2018-2022 (2017) states that the mining industry is a global industry that can create jobs, spur innovation and bring scale investment and infrastructure over a longer period of time, and as a major contributor to economic growth and social development. On the other hand, mining exploration activities, mining for base metals (for example Al, Fe, Mn and Ni), and energy fuels (oil, gas, coal and uranium) and precious metals (for example Au, Ag, and Ta) in many areas also often become the target of community mining which has potential implications or negative impacts on the environment (Carvalho, 2017). This happens when international environmental standards are not respected and economic diversification is not carried out (Martine and Alves, 2015; European Bank for Reconstruction and Development - EBRD Extractive Mining Industries Strategy 2018 - 2022, 2017). This view is in line with the opinion of Dubiski (2013) which states that the existence of mining exploration activities causes inconvenience for people who live in the mining area or the nearest environment, so that they must obtain public approval for their activities.

Then, the implications or environmental impacts of mining exploration activities can occur in all phases of mining projects, exploration, waste rock disposal and overburden, ore processing and plant operations, tailings management (waste treatment), infrastructure (access and energy) and camp construction and cities (Boocock, 2002). Therefore, real concern about the environment is a very important factor (Wrighton, Bee & Mankelow, 2014) in mining exploration activities, the continuing extraction of mineral resources on a global scale tends to increase. Furthermore, the history that mining exploration activities in Indonesia, according to Leeuwen (2014) is originated in Sumatra. Mining exploration activities in this region were marked by the commencement of dredging operations back in Logas between 1954 and 1958 and between 1964 and 1970. Later, the situation changed dramatically with the introduction of the Foreign Investment Law and the revision of the Mining Law in 1967 which enabling foreign investment in the mining sector under the CoW or CoW system (Leeuwen, 2014). According to Irsan and Mutiari (2013), the concept of Production Sharing Contract (PSC) turned out to be well received 3 BFS - 1/2/2019 from contractors foreigners, so that from 1966-1975 there were 55 foreign companies operating in Indonesia based on profit sharing principles. According to Sutadi in Irsan and Mutiari (2013), the Production Sharing Contract (PSC) is a form of cooperation with foreign parties in the oil and gas sector in accordance with the constitution and existing legislation. According to article (1) number (1) PP No. 35 of 1994, a Production Sharing Contract (PSC) is a collaboration between Pertamina and a contractor to carry out business of exploration and exploitation of oil and gas based on the principle of production sharing. In this context, one of the companies tied to the concept of a production sharing contract (PSC) with BP Migas and now turning into SKK Migas is PT Chevron Pacific Indonesia (PT CPI). PT. CPI is a petroleum exploration company and has become a leading energy producer in Indonesia, exploring Indonesia's energy potential through innovation, producing oil production from oil fields (Chevron Indonesia, 2019). Based on historical records about the existence of Chevron in Indonesia, it began in 1941 and has been drilling in Duri Field. Then, in 1944 the company

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discovered one of the mining wells in Minas, becoming the largest oil field ever found in Southeast Asia. This oil field began production in 1952 with a capacity of more than 12 billion barrels of oil from land fields in Riau Province and offshore fields in East Kalimantan Province. As a company that is tied to the concept of production sharing contract (PSC), PT CPI has one of the obligations to carry out bioremediation, restore land contaminated by operations and exploration (Adlina, 2015). Then, in an effort to normalize the function of post-mining land (bioremediation), PT CPI collaborates with PT Green Planet Indonesia and PT Sumigita Jaya to work on it (Irsan and Mutiari, 2013).

2 STATEMENT OF PROBLEM

The mining life cycle begins with exploration, continues through production, and ends with closure and post-use land (Technologies in Exploration, Mining, and Processing <https://www.nap.edu/read/10318/chapter/5>, accessed February 5, 2019) In this context, the implementation of mining exploration activities can be interpreted as a series of activities to search, mining or extracting, processing, utilizing and selling minerals (minerals, coal, geothermal, oil and gas). Then, mining exploration activities have positive implications, can create jobs, spur innovation and bring large-scale investment and infrastructure over a longer period of time, as a major contributor to economic growth and national development and social welfare. According to Bank Indonesia statistics in PricewaterhouseCoopers (PWC) Consulting Indonesia (2018), the mining sector is one of the main sectors that supports Indonesia's economic growth for several years, contributing significantly to Indonesia's GDP in the form of exports, government revenues, employment, and economic development of remote areas where mining operations are located (Sesprofessionals, 2018).

TABLE 1 CONTRIBUTION OF THE MINING INDUSTRY TO INDONESIA'S GDP

No.	Year	Contribution to GDP
1.	2006	4.98
2.	2007	5.23
3.	2008	5.21
4.	2009	6.01
5.	2010	5.56
6.	2011	6.14
7.	2012	5.89
8.	2013	5.50
9.	2014	5.01
10.	2015	4.30
11.	2016	4.23
12.	2017	4.70

Source: [//sesprofessionals.com/overview-of-indonesias-mining-industry/](https://sesprofessionals.com/overview-of-indonesias-mining-industry/), 2018

On the other hand, according to Kamwanje (2018), the negative implications of mining operations are considered to have more overall negative impacts on society than the positive impact. In this case, it can be interpreted that the implications or negative impacts of mining operations in the long term, environmental damage caused in all phases of mining projects, namely from the time of exploration, pollution due to waste rock disposal and overburden, ore processing and plant operations, tailings management (waste dregs or wastes containing toxic substances), infrastructure (access and energy), can change the shape of topography and the condition of the land (land impact) which can change the

balance of the ecological system for the surrounding area. Thus, people suffer because of the presence of sewage holes, abandoned families, and polluted environments.

3 RESEARCH PURPOSES

The purpose of this study was to find out about how the implementation and implications of mining exploration activities in Block Rokan Riau Region in a legal perspective with case studies at PT. Chevron Pacific Indonesia (PT CPI). Then, based on the analysis carried out and the results obtained, suggestions were made so that the mining industry in general and PT. Chevron Pacific Indonesia (PT CPI) in particular is able to comply with the legal aspects of mining and environmental legal aspects that apply in its mining exploration activities in the Riau Rokan Block. In this context, the implementation and negative implications of mining exploration activities in all phases of the mining project in the form of environmental damage caused can be mitigated and managed as stipulated in the laws and regulations that apply in the legal territory of the Republic of Indonesia. Compliance with mining law and other aspects of environmental law that apply to the mining industry in general and PT. Chevron Pacific Indonesia (PT CPI) in particular in its mining exploration activities in the Riau Rokan Block will minimize the negative implications of mining exploration activities in all phases of the mining project, the resulting environmental damage can be mitigated and managed properly. Thus, the research questions are: (1) is the implementation of mining exploration activities of PT. Is Chevron Pacific Indonesia (PT CPI) in Block Rokan Riau Region fulfilling compliance with the legal, regulatory and statutory aspects that apply in Indonesia? (2) what are the negative implications or impacts of the implementation of mining exploration activities of PT. Chevron Pacific Indonesia (PT CPI) in Block Rokan Riau Region in a legal perspective in Indonesia?

4 RESEARCH METHODOLOGY

This research method uses a normative juridical method, is legal research conducted by examining library materials or secondary data (Soekanto & Mamudji, 2006), and the analysis specifications of this research are carried out in description, description is the precise measurement and reporting of characteristics of a population or phenomenon under study (Babbie, 1986). According to Wu, Thompson, Aroian, McQuaid, and Deatrack (2016), the key to all qualitative methodologies is that various perspectives on an interesting phenomenon are important, and that perspective is best inductively derived. Then, the data sources used are secondary data which includes primary legal materials (laws that have binding powers), secondary legal materials (materials that are complementary), and tertiary legal materials (in the form of legal information material) which are then analyzed qualitatively in terms of formulation justification through the quality of legal norms themselves, expert opinions/doctrines.

4.1 Mining Exploration Activities

Mining exploration activities are very diverse and have different ecological traces such as past mining activities that leave a trail of environmental damage (Carvalho, 2017). According to Carvalho, the remains of mining exploration activities accumulated over the centuries but only in the last quarter of the 20th century did the environmental impact and

human health finally be recognized. Since then, there has been significant development of laws for environmental protection and sanitation. Therefore, the problem of mining exploration activities has become a very important and worldwide agenda such as mine tailings and acid mine drainage. According to experts in Antonio, Luna, López & Ríos (2014), acid mine drainage (AMD) acid formation has been widely recognized as one of the major environmental problems caused by mining throughout the world, as evidenced by various studies. According to Cruz and Monroy (2006), Monterroso and Macías (1998), Younger, Coulton and Froggatt (2005) in Antonio, Luna, López & Ríos (2014) that minerals are very influential on the formation of AMD, iron sulfide (pyrite, FeS_2 , and pirhotite, $\text{Fe}_1\text{-XS}$), which are stable and insoluble when not in contact with water and atmospheric oxygen as a result many river streams throughout the world experience metal contamination from the sulfide oxidation process that occurs on the mining surface. According to Nordstrom (2011) and Jain et al. (2016) in Carvalho (2017), tailings are generally very large and contain toxic elements that can be released and introduced in the biogeosphere. Then, acid mine drainage is often generated from exposure to rock minerals and ore deposits to water and oxygen which facilitate the mobilization of chemical elements and increase their concentration in water and food chains, with detrimental effects on ecosystem health and human health (Carvalho et al. 2007, 2016; Hudson- Edwards et al. 2011; Nordstrom, 2011). Based on various expert opinions regarding the mining business, the implementation and implications of mining exploration activities can be interpreted as two sides. First the positive side, mining exploration activities can accelerate the creation of employment, innovation and bring large-scale investment and infrastructure in a longer period of time. In this context, experts agree that mining exploration activities contribute greatly to economic growth and national development and social welfare. Meanwhile, negatively, mining exploration activities destroy landscapes, forests and wildlife habitats at mine sites when trees, plants, and topsoil are cut down from the mining area. This in turn leads to soil erosion and destruction of agricultural land. Then, when it rains, rain water sweeps the top soil loose into the river, sediments pollute the waterways which lead to flooding, and damage the livestock habitat and plants downstream. Mining exploration activities indicate a tendency to increase the risk of chemical contamination of ground water, dust and noise pollution when the upper ground is disrupted by heavy machinery used which causes natural areas to be damaged and contaminated, despite reclamation and bioremediation efforts, normalizing post-mining land functions. However, environmental damage to water supplies, destroyed habitat, and poor air quality is a long and problematic task.

4.1 Legal Implications of Mining Exploration Activities in case of Bioremediation

The history of Chevron's partnership with the community and the Indonesian Government can be traced since 1924, when Standard Oil Company of California (Socal), now Chevron, sent a geological expedition to Sumatra Island (Chevron in Indonesia, <https://indonesia.chevron.com/about>, accessed February 6, 2019). Then, in 1941, the company drilled in Duri Field and in 1944, one of the wells near the village in Minas became the largest oil field ever found in Southeast Asia and production began in 1952, and has produced more than 12

billion barrels of oil from land fields in Riau Province and offshore fields in East Kalimantan Province. The exploration area which is an oil and gas block in the field of PT. Chevron Pacific Indonesia (PT Chevron Indonesia Exploration Area CPI) in Riau Province has an area of 6,220 km with 96 oil fields including Duri, Minas and Bekasap (Affan, 2018) and covers the 7 largest contract areas in 4 provinces, Riau, Jambi, North Sumatra and Aceh. The operating location of PT. CPI is divided into several districts: A. Rumbai District, is the administrative center for the Sumatra region; B. Minas District, is an area of Sumatra Light Crude (SLC) oil production operations; C. Duri District, is a Heavy Crude/Duri Crude (DC) oil production area; D. Dumai District, is a storage area, port and shipping Crude Oil (Purwanti and Sitorus, 2012). Then, the Rokan Block still has great potential, becoming the largest contributor to oil production in Indonesia and throughout the first quarter of 2014, oil production from the block reached 230,170 barrels per day (Tempo, 2017). According to the Ministry of Energy and Mineral Resources's Directorate General of Oil and Gas in Sugianto (2019), PT Chevron Pacific Indonesia (CPI) is one of the oil and gas companies with the largest waste pollution, has contaminated not only oil sands but spilled oil into the TTM and Chevron has carried out 15,000 well drilling in Riau. Then, according to data from the Directorate General of Oil and Gas at the Ministry of Energy and Mineral Resources, in 2018 PT. CPI left as many as 27,275.6 tons of waste oil scattered and contaminated the land and there were also as many as 3,515 tons of waste remaining from the operation. Therefore, the main problem in this study is whether PT Chevron Pacific Indonesia (PT CPI) has complied with the legal aspects of mining and environmental legal aspects that apply in its mining exploration activities in Blok Rokan, Riau Region, and how PT CPI should conduct bioremediation in Blok Rokan Riau Region is in a legal perspective. Then, negative findings from the results of the research and discussion on the Analysis of the Implementation of the Liquid Waste Management Environmental Audit at PT. Chevron Pacific Indonesia (Case Study of Minas Field Produced Liquid Waste, Riau Province) conducted by Hermiyetti and Poetri (2010), that there are still damaged waste treatment facilities and have an impact on the overall waste treatment process and if left unchecked it will cause pollution in the surrounding area. Furthermore, Hermiyetti and Poetri (2010), suggested to the management of PT. Chevron Pacific Indonesia in order to disseminate to the public about the results of the audit relating to the Analysis of the Implementation of the Liquid Waste Management Environmental Audit. In this way, the wider community in the oil production area (Minas, Riau Province) can know transparently that the company has carried out environmental management and monitoring properly according to the applicable laws and regulations. However, due to mining activities by PT. The CPI has a negative impact, is very damaging to the environment including the plants belonging to the community (Ismael, 2010), and is strongly suspected of violating the Living Environment Law rules as stipulated in Article 98 and Article 103 of Law No. 32 of 2009 concerning Environmental Protection and Management. In this case, the CPI is a production sharing contract (PSC) oil exploration company with BP Migas (now transformed into SKK Migas), and CPI has one of the obligations to restore lands polluted due to operations and exploration (Adlina, 2015). Thus, the implementation of PT. Chevron Pacific Indonesia (PT CPI) in

Block Rokan, Riau Region, raised a bioremediation case, carried out land breeding at a mining site in Riau in the 2000s (Saputra, 2016) so that it has entered the legal domain. For example, the ruling of the Supreme Court (MA) which decides and punishes Chevron employees who are dragged in a vortex of bioremediation projects or environmental recovery from land conditions affected by waste due to oil exploration carried out by the US oil and gas company. As a result, the country suffered losses of up to 23.336 million US dollars or more than Rp 200 billion (Sukmana, 2014). However, the Supreme Court's decision was responded to by the Decision of the Constitutional Court 18/PUU-XII/2014 after testing Article 59 Paragraph (4), Article 95 Paragraph (1) and Article 102 of Law No.32 of 2009 concerning Protection and Management of the Living Environment against the 1945 Constitution. In this context, the Constitutional Court has tested Article 59 paragraph (4) in conjunction with Article 102 and Article 95 paragraph (1) of Law Number 32 of 2009, in the decision number 18/PUU-XII/2014 stating that Article 59 paragraph (4) PPLH Law contradicts the 1945 Constitution and does not have binding legal force insofar as it is not interpreted. "B3 waste management must obtain permission from ministers, governors, or regents/mayors in accordance with their authority and for B3 waste management whose application for extension of licenses is still in process. considered to have obtained a permit so as to delete the word "can" and provide a conditional unconstitutional interpretation of the phrase "environmental crime" in Article 95 paragraph (1) of the PPLH Law insofar as it is not interpreted "including other crimes originating from violations of this law. Thus, Article 95 paragraph (1) of the PPLH Law completely becomes "In the context of law enforcement against perpetrators of environmental crimes, including other crimes originating from violations of this law, integrated law enforcement is carried out between investigators of civil servants, the police, and the prosecutor's office under the coordination of the Minister."

5 CONCLUSION

In the legal perspective, the legal aspects of mining and environmental law have been regulated in various laws and regulations. For example, as according to Article 1 number 19 Law No. 22 of 2001 concerning Oil and Gas states that Cooperation Contracts are Production Sharing Contracts or other forms of cooperation contracts in exploration and exploitation activities that benefit the country more and the results are used for the greatest prosperity of the people. Then, the environmental legal aspects relating to bioremediation or restoring contaminated lands due to operations and exploration, normalizing the function of post-mining land, and conducting bioremediation are regulated according to the Decree of the Minister of Environment No. 128 of 2003 (Kepmen LH 128/2003) concerning Procedures and Technical Requirements for Biological Processing of Petroleum Waste and Contaminated Land by Petroleum. This Decree of LH 128/2003 regulates related regulations: (1) permits that must be submitted by the "owner" of contaminated land or contamination to be processed (2) the construction design required for a bioremediation center (3) requirements for waste conditions before processing (4) monitoring during the biodegradation process (including sampling guidelines), and (5) requirements for land relocation after processing related to requirements for inspection, relocation and monitoring of land after relocation. Furthermore, the

environmental legal aspects that should be adhered to in mining exploration activities in Indonesia are all applicable regulations and laws, as stipulated in Article 58 paragraph (1), Article 59 paragraph (4), Article 97, 98, 99, 100 and Article 102 of Republic of Indonesia's Law No. 32 of 2009 concerning Environmental Protection and Management. According to Rowley and Schneider (2008: 227), the law must be made by the legislature, interpreted by the court, and enforced by the executive branch of government. In line with the opinion of Rowley and Schneider, the significance of this research is to examine the very important agenda and become the substance, whether PT Chevron Pacific Indonesia (PT CPI) has complied with the applicable regulations and laws and regulations in Indonesia, and how companies should bioremediation in the Block Rokan Riau Region in a legal perspective. Therefore, the implementation and implications of PT Chevron Pacific Indonesia (PT CPI) mining exploration activities in the Rokan Block of Riau Region in a legal perspective can be interpreted as the company's compliance as Mining Authority Holders in the provisions of Indonesian laws and regulations. Mining exploration activities in Indonesia must be carried out by the mining industry in general, and PT Chevron Pacific Indonesia (PT CPI) in particular in the legal perspective, comply with all regulations and laws that apply in Indonesian jurisdiction. In this way the waste management of PT. Chevron Pacific Indonesia, which is suspected of violating the rules of the Living Environment Law, can be avoided. This view is in line with Abta (2006) which states that extracting sources of wealth must be endeavored with utmost effort and strategies that do not damage the environment and human life procedures need to be used environmentally friendly technology and can preserve it so that it can be utilized sustainably.

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