

Poisoning of Residents due to Gas Leaks in East Aceh in Environmental Law Perspective

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ABSTRACT

The mass poisoning of residents due to the inhalation of gas from PT Medco E&P Malacca's oil and gas well in the Block A area has sparked a debate in various circles in Aceh. Evacuations of residents from their villages have been carried out due to gas leaks and the presence of pungent odors. The public has accepted Medco E&P Malacca's statement taking responsibility for the gas leaks and the resulting public health problems. Residents have also recognized the environmental impact of these gas leaks on air quality, water sources, and agricultural land.

Keywords: Poisoning, Gas Leak, Environmental Law Perspective.

1. INTRODUCTION

The Medco E&P Malacca project is a national strategic project (PSN) in Block A, East Aceh, covering 4 sub-districts: Indra Makmur, Julok, Nurussalam, and Banda Alam Districts. The project aims to develop natural resources, such as oil and gas, to improve the welfare of local communities. Although the project has been associated with incidents and concerns raised by residents, the community has shown understanding and generosity. The presence of national strategic projects in their village has brought about many positive changes for the community.

Rationally, the presence of mining companies does have a mixed impact. The environmental effects of gas extraction in Block A, East Aceh, carried out by PT Medco E&P Malacca, can include air pollution, water pollution, and soil pollution. There is a suspected odor of gas contaminating the air around PT Medco E&P Malacca's operational area. This gas odor can cause nausea, vomiting, dizziness, shortness of breath, and fainting in residents who inhale it.

Based on our recent research, the character of the people of East Aceh differs from that of residents in other regions. Although there have been reports of changes in the taste and water content of wells near the mining site, residents in Banda Alam, Nurussalam, Julok, and Indra Makmur sub-districts do not consider this to be a

significant complaint. The well water is suspected to be contaminated with PT Medco E&P Malacca's production process waste, but it remains within the tolerance threshold. Additionally, there is a possibility of negative impacts of gas extraction on the quality of residents' agricultural land, as there is an assumption that gas extraction can reduce soil fertility and disrupt crop productivity. Despite these concerns, the gratitude of the residents for the presence of mining companies is not diminished, as they perceive it as a blessing.

Some time ago, dozens of residents of Gampong Pantan Rayeuk T, Banda Alam District, East Aceh Regency were rushed to the local Puskesmas IGD because they were suspected of having gas poisoning due to a gas leak from PT Medco E&P Malacca. Hundreds of residents were also displaced by a foul smell allegedly caused by the washing of oil and gas company gas wells in the area. Poisoning with the same suspicion is not the first time the mining ring area has occurred. That is, although the presence of mining companies is one of the factors for economic growth, negative impacts on the environment arise along with economic growth. Therefore, this article will discuss the occurrence of poisoning of residents due to gas leaks in East Aceh from the perspective of Environmental Law, specifically Law Number 32 of 2009 concerning Environmental Protection and Management. This is because poisoning due to inhalation

of toxic gases can cause olfactory fatigue or decreased function of the sense of smell and shortness of breath [1].

2. LITERATURE REVIEW

There are three groupings of environmental problems, namely the problem of environmental pollution, the problem of wrong land use and the problem of depletion or depletion of natural resources [2]. Where these three problems are problems that often arise in environmental handling and for this study are related to the third problem, namely the drain of natural products that are almost exhausted and cause problems of toxic gas pollution for the community. While the understanding contained in Law Number 32 of 2009 concerning Environmental Protection and Management (hereinafter referred to as Law No.32/2009) recognizes that there are two environmental problems, namely pollution problems and environmental destruction problems. In this case, the research focused on pollution carried out by PT Medco E&P Malacca.

Specifically, about the problem of waste gas alleged to PT Medco is a type of waste gas and particles that are discharged into the air carried by the wind, thus expanding the range of exposure, and hitting the local community. Where these materials mix with wet air so that particles become more at night or go down to the ground along with dew, where it naturally contains chemical compounds such as oxygen, nitrogen, hydrogen, carbon dioxide and several other types of gases. The addition of gaseous elements to the air that exceeds its natural content as an effect of human activities, such as factory activities reduce air quality, even poison the air which ultimately endangers the human body itself [3].

Article 1 point 2 of Law No.32/2009 states that environmental protection and management is a systematic and integrated effort carried out to preserve environmental functions and prevent environmental pollution and/or damage which includes planning, utilization, control, maintenance, supervision, and law enforcement. This confirms the need for a control of pollution and environmental damage to ensure the preservation of the environment itself. Control of these two things, one of which is control of water, air, and sea pollution. Article 13 paragraph (2) confirms that the control of pollution and / or environmental damage is carried out in 3 ways, namely: prevention, mitigation, and recovery.

The poisoning case due to a gas leak that occurred in East Aceh basically requires a process of proof from the results of an in-depth investigation. Poisoning is the condition of a chemical substance that has disrupted physiological processes, so that the state of the organism's body is no longer in a healthy state. In other words, the organism becomes ill [4]. Poisoning can be

caused by a person ingesting, inhaling, or touching substances that are harmful to the body. Symptoms of poisoning include abdominal pain, vomiting, nausea, diarrhea, loss of appetite, shortness of breath, difficulty swallowing, reddish skin, blue lips, seizures, and loss of consciousness.

Poisoning due to inhalation of toxic gases or gas intoxication is defined as the inhalation of air mixed with toxins that are harmful to the body, either intentionally or unintentionally. Gas poisoning that often occurs in the operational area of PT Medco E&P Malacca is one of the impacts that must be felt by the community around the mine and CPP (Central Processing Plant) pipeline. In the activity of washing wells (*flaring*) there will indeed be an odor due to the high content of H₂S levels [5].

3. METHOD

This research uses normative juridical methods with a *statutory approach* (*statute approach*) and a comparative approach (*comparative approach*). The normative juridical method is a legal research method that examines legal norms systematically and critically. The statutory approach is an approach that examines the content and meaning of laws or other legal regulations related to the research topic. The comparative approach is an approach that examines the similarities and differences between the legal systems or legal rules of two or more countries [6][7].

The research used is juridical normative and supported by empirical data. This normative juridical research means that legal research puts the law as a building system of norms. The norm system in question is about principles, norms, rules of laws and regulations, agreements, and doctrines (teachings). This research was conducted on primary legal materials in the form of laws and regulations, jurisprudence, and international agreements, as well as secondary legal materials such as research results in scientific journals, law books related to the law of cooperation and agency agreements and the work of legal circles [8]. While empirical juridical research is research that has the object of study of community behavior. The behavior of the community studied is behavior that arises from interacting with the existing norm system. The interaction arises as a form of community reaction to the implementation of a positive legal provision and can also be seen from community behavior as a form of action in influencing the formation of a positive legal provision [9][10].

To obtain the data and research materials, the data will be obtained by conducting field research through interviews with respondents and *library research*, which is research that examines various literature and laws and regulations.

The research materials include primary legal materials and secondary legal materials. Primary data and secondary data obtained in this study will be analyzed prescriptively and descriptively qualitatively, namely general data on legal conceptions in the form of legal principles, postulates and teachings (doctrines) and expert opinions including community opinions that are systematically assembled as an arrangement of facts. This research analysis method uses deductive logic for normative juridical research and inductive logic for empirical juridical research. Deductive logic is a way of thinking that departs from the understanding that something that applies to the whole event or group / type, applies also to each element in the group / type of event. While inductive logic is a way of thinking that departs from specific / certain knowledge or individual facts that are assembled to draw general conclusions.

4. RESULT AND DISCUSSION

4.1. Social Impact of Gas Mining

Some of the concerns raised by residents include mass poisoning, evacuation, and accountability of Medco E&P Malacca. The Medco E&P Malacca project is a significant development venture in Block A, Aceh. Its objective is to exploit natural resources like oil and gas to enhance the well-being of local communities. The project has been associated with various incidents and concerns expressed by the locals.

Gas production and oil production differ in several ways. Oil and gas formations occur when hydrogen and carbon atoms in plant and animal remains combine in geological formations. Over millions of years, these accumulations solidify and transform into rock. Oil and gas are trapped in porous rocks that are sandwiched between harder layers.

Oil and gas exploration is the initial step taken by mining companies to identify layers that potentially contain oil and gas. Seismic surveys are conducted to identify structures that may harbor oil traps. Exploratory drilling is then carried out to confirm the presence of oil and gas.

Drilling or extraction is the primary production process for oil and gas, relying on underground pressure from hydrocarbon reservoirs to push oil and gas to the surface. However, the underground pressure of oil and gas reserves is rapidly declining, necessitating additional methods such as secondary or improved oil recovery techniques to extract more oil.

Gas is a global necessity, with Aceh partially contributing to its supply. The gas and oil potential in Aceh is vast and promising. Based on the drilling results in the Andaman Working Area (WK), an average gas reserve of 6 trillion cubic feet (TCF) was discovered in three blocks, namely

Andaman I, II, and III. The Andaman Block is situated in Aceh waters, close to Thailand, and could become the world's largest discovery if more gas is found.

Additionally, there is also potential for oil and gas in the WK Offshore Northwest Aceh (Meulaboh) and WK Offshore Southwest Aceh (Singkil), which are being offered through direct bidding (joint study). Despite the complex geological challenges, these two areas are estimated to hold a considerable amount of oil and gas. Apart from these areas, Aceh also possesses other natural resources such as copper, lead, coal, and gold. Therefore, Aceh has the potential to become a significant contributor to the country's foreign exchange through oil and gas production and mining.

The potential of gas from East Aceh extracted by PT Medco E&P Malacca is quite large and has a positive impact on the regional economy. Based on data from the Aceh Oil and Gas Management Agency (BPMA), Block A managed by the company still has gas reserves of more than 450 billion cubic feet (BCF). PT Medco E&P Malaka also has a gas sales commitment of 58 BBTUD with PT Pertamina (Persero), and 5 BBTUD through other memorandums of understanding.

In addition, the company is also preparing US\$ 76.8 million to maintain gas production from the Alur Siwah field in Block A, East Aceh. This field is one of three fields developed by PT Medco E&P Malacca, in addition to the Rambong Groove and Julu Rayeu fields. These three fields are claimed to still hold the potential of around 2 to 3 trillion cubic feet (tcf) of untouched gas. Gas from the two fields can generate electricity of around 1,000 to 1,200 megawatts (MW) within 15 years.

Natural gas has a wide variety of applications. Natural gas is the top three energy sources globally and is used to generate electricity. Natural gas is widely used for heating purposes in many households due to its efficiency and ease of use. Although petroleum dominates the market share, vehicles Gas-fired control of about 3% of the market. Natural gas is essential for producing chemicals, fertilizers, and hydrogen.

Natural gas stoves have also been widely used for cooking. Natural gas is often the top choice for water heaters because of its fast-heating time and relatively low cost. Although not as popular as other variants, there is a gas-powered air conditioning system. Controlled fires, such as those that occur in chimneys or barbecue grills, benefit from natural gas because of its safety, ease of use, and control. These are just a few examples of the many uses of natural gas. It plays an important role in energy generation, industrial processes, and everyday life.

4.2. The Dilemma of Areas with Gas Potential

Regarding the natural gas leak poisoning incident experienced by residents of Banda Alam sub-district in East Aceh adjacent to PT Medco's natural gas mining operations, it is necessary to see how the environmental law analysis on this matter. The environment of areas that have oil and gas resources is somewhat dilemmatic. If natural gas and oil are not mined from the bowels of the earth which is a very valuable natural wealth which if not explored and exploited will result in the release of natural gas naturally when earthquakes occur and so on.

If this happens, without exploration and exploitation from mining companies, it will result in gas poisoning and natural fires. However, if it is mined, it will also still experience the risk of gas leakage from the processing plant where the mining company operates. However, this risk can be minimized by creating a technical and managerial mitigation and handling system, especially management in the field of relations with the surrounding community and its juridical implications.

There are several legal impacts associated with gas extraction in Block A East Aceh carried out by PT Medco E&P Malacca. Some of the legal impacts that may arise include: (1) Alleged Environmental Pollution: There are complaints and alleged gas odors around PT Medco E&P Malacca's operational area. The Environment Office of East Aceh Regency and Aceh Province have checked the alleged gas odor. (2) Public Health: There have been reports of mass poisoning of residents suspected of inhalation of air contaminated with gas from oil and gas wells of PT Medco E&P Malacca Block A. Residents suspected of gas poisoning must be hospitalized. (3) Lawsuits: Walhi Aceh together with affected residents plan to sue PT Medco E&P Malacca for alleged negligence of pollution due to the operation of the oil and gas company.

However, Medco has shown great responsibility and concern for the poisoning cases experienced by these 28 residents and PT Medco has also handled 400 families displaced from their villages in Banda Alam sub-district, East Aceh. This shows that managerially, PT Medco's management has taken the best mitigation measures to overcome the occurrence of gas leakage disasters which are certainly not intentional by PT Medco's mining company.

4.3. Poisoning of Residents due to Gas Leaks in East Aceh in the Perspective of Law No.32/2009

Cases of poisoning due to gas leaks have occurred several times in East Aceh. Extraordinary Events (KLB) that have just occurred due to gas well washing (*flaring*). The inhaled gas is H₂S or Hydrogen Sulfide, which is a component of natural gas that is formed naturally because it is a thermal conversion product of decaying organic

matter. Natural gas contains about 70 to 90% methane and up to 20% other hydrocarbons such as butane, propane, and ethane. There are also natural contaminants in natural gas such as water vapor, sand, oxygen, carbon dioxide, nitrogen, helium, neon, and hydrogen sulfide. In fact, hydrogen sulfide is a major impurity in natural gas [11].

Regulation of the Minister of Energy and Mineral Resources of the Republic of Indonesia Number: 31 of 2012 concerning the Implementation of Flaring Gas in Oil and Gas Business Activities (*hereinafter referred to as Minister of Energy and Mineral Resources No.31/2012*) states that flaring is carried out by Contractors or Business License Holders. This is based on Article 2 of the Minister of Energy and Mineral Resources No.31/2012. Meanwhile, Article 3 paragraph (1) regulates the limit on the volume of flaring gas. That is, if the flaring process is carried out within the predetermined limits, there will be no negative impact from the flaring activity. the volume of Flaring Gas exceeds the limit as referred to in Article 3 paragraph (1), so the Contractor or Processing Business License Holder must conduct an optimization study on the utilization of Flaring Gas.

Article 23 of Law No.32/2009 also confirms that businesses or activities exploiting natural resources, whether renewable or not, that have an important impact must have an Environmental Impact Assessment (Amdal). Moreover, if the business or activity can cause pollution and / or damage to the environment as well as waste and degradation of natural resources in their use. The case of poisoning of residents due to gas leaks in East Aceh needs to be reviewed regarding the Amdal from PT. Medco E&P Malacca during this time. The Amdal document as referred to is the basis for determining environmental feasibility decisions.

The state through legal instruments, namely Article 53 of Law No.32/2009 has made it mandatory for businesses or activities that cause pollution to carry out countermeasures. Either by providing warning information, isolation or stopping the source of pollution itself. In addition, the party concerned is also obliged to carry out recovery by stopping or cleaning polluting elements, remediation, rehabilitation, and restoration. It also includes the obligation for Business License Holders to provide guarantee funds for the restoration of environmental functions.

The law also empowers State Officials, namely Ministers, Governors, and Mayors/Regents to provide administrative sanctions to the Person in Charge of the business if in the implementation of its activities there are indications of violations of environmental permits, such as the occurrence of pollution and / or environmental damage. The administrative sanctions range from written reprimands to revocation of environmental permits.

Furthermore, it can even be punished if it is proven that negligence or intentional conduct resulted in a danger to human health.

5. CONCLUSION

The Block A, Aceh development project by Medco E&P Malacca has great potential in the processing of natural resources such as oil and gas, which can improve the welfare of local communities. However, the project has raised various concerns and incidents, including mass poisoning of residents and environmental concerns. The oil and gas extraction process involves several stages, such as exploration, drilling, and recovery. Aceh has great gas potential, especially in the Andaman Working Area, which has significant gas reserves.

However, public concerns related to environmental and health impacts related to gas extraction need attention. Gas poisoning cases that have occurred in East Aceh show the importance of good management and risk mitigation by the company. From an environmental law perspective, there are regulations governing gas extraction and its impacts, such as the Environmental Impact Assessment (Amdal). Tackling pollution and environmental damage is the responsibility of the company, and violations may be subject to administrative or even criminal sanctions.

Medco E&P Malacca's project in Aceh has great potential for the local economy, but also raises environmental and public health concerns. It is important to maintain a balance between natural resource development and environmental protection in accordance with existing regulations.

SUGGESTION

1. **Transparency and Community Engagement:** Medco E&P Malacca should increase transparency in its operations and actively involve local communities in decision-making regarding projects. This includes providing clear information about the extraction process, its impact, and the mitigation actions taken.
2. **Strengthening Environmental Management:** Companies should improve environmental management by identifying and reducing potential risks related to environmental pollution. These include improved air and water monitoring and more effective gas leak mitigation systems.
3. **Regulatory Compliance:** Medco E&P Malacca must ensure full compliance with applicable environmental regulations, including Amdal. This includes regular reporting and recovery in case of violations.
4. **Corporate Social Responsibility (CSR):** Companies should be more active in developing CSR programs that benefit local communities. This can include

health programs, education, and infrastructure development.

5. **Improvement of Occupational Safety and Health:** Occupational safety and health (K3) is a top priority. Medco E&P Malacca must ensure that its employees and surrounding residents remain safe from hazards associated with its operations.
6. **Third Party Involvement:** Working with independent third parties to monitor environmental and public health impacts and check the company's compliance with environmental regulations.
7. **Improved Communication:** Companies should be more active in communicating with governments, NGOs, and communities about steps taken to address environmental and health concerns.

Thus, Medco E&P Malacca can minimize the negative impact of its projects, build better relationships with local communities, and ensure the long-term sustainability of its operations.

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