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Calculation of Civil Losses due to Oil Pollution in Cilacap Sea Through a Zemiological Approach of Social Losses

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ABSTRACT

This paper attempts to discuss, in depth, about immaterial compensation in calculating civil compensation for oil pollution due to tanker accidents in the Cilacap sea, in a potential marine and marine tourism area where Cilacap fishermen look for fish for their livelihoods that support the local economic sector. The method of calculating social losses through a zemiological approach will be discussed as one of the important economic values to be considered as immaterial and the fulfillment of the polluter pays principle. The empirical normative legal approach method with a statutory approach and a conceptual approach is used to obtain accurate results in analyzing zemiological methods in calculating civil compensation in this case study. The results of the discussion show that the zemiological approach has not been a consideration in resolving various cases of marine pollution. It takes the state's responsibility to make a policy to calculate civil compensation for immaterial losses in environmental pollution that have an impact on social damage.

Introduction

The marine environment of Indonesia is an important aspect of the country's economy (Gore, 1995), with a coastline of about 95,181 km it has high potentiality. This is only second in size to Canada, which boasts the world's second-longest coastline. The economic value, particularly from the sea, is estimated to be in the range of US$ 3 trillion to US$ 5 trillion. Other potentials resulting from biotechnology, marine tourism, and the development of sea transportation are not included in this figure (Elly Kristiani Purwendah et al., 2017). Indonesia's great maritime potential is captured as one of the leading visions and missions of the current Jokowi administration. In addition to the massive economic and ecological potential that a maritime country holds, the risk of natural damage caused by excessive exploration, which could jeopardize development's long-term viability, should be given special consideration, given the sea's strategic role and the fact that some Indonesians rely

on it for their livelihood. The sea needs to get major attention in law enforcement, especially from the consequences of ecosystem damage due to pollution (Elly Kristiani Purwendah et al., 2017). As stated by the president of the Republic of Indonesia during his speech at the Rio +20 Conference (United Nations Conference on Sustainable Development) in Rio de Jeneiro, Brazil on June 20-22, 2012, the potential of marine wealth has become such a priority for Indonesia in the concept of green economy and blue economy, which leads to sustainable development (Bullard, 1994b).

Sources of marine pollution can come from ships, oil drilling installations, land and air. The problem of oil pollution in Indonesia caused by tanker accidents requires immediate attention in terms of the right to sue (*ius standi*), evidence related to scientific verification to explain causal relationships, application of the compensation principle, and the scope and extent of environmental issues to define the level of compensation. The standards for environmental recovery related to the civil compensation claim system's formal truth system (Elly Kristiani Purwendah & Mangku, 2021).

In 2015 in Teluk Turtle Cilacap, Central Java, there was a problem of claiming compensation due to oil pollution. On Monday, May 25, 2015, there was a huge oil spill in the waters of the Cilacap sea. Residents and fishermen on Monday, May 25, 2015, were busy collecting spilled crude oil that polluted the Teluk Turtle Beach tourist area in Cilacap Regency, Central Java. The leak came from the leaking pipe of Pertamina *Refinery Unit IV* Cilacap's crude oil loading and unloading facility, which was damaged on Wednesday night, May 20, 2015. (Finesso, 2015) Acting Chairman of the Indonesian Fishermen Association (HNSI), Indon Tjahyono demanded that Pertamina continue to provide compensation due to the pollution. HNSI asked for compensation of Rp. 100,000 per fisherman per day for a period of two weeks. His party is still conducting further tests on the findings, among others by cooperating with the police, the Cilacap Regency Environmental Agency and the Ministry of Environment. According to Indon, if the results of the laboratory test confirm the research that has been carried out by Pertamina, then the responsibility for the oil spill that reaches Teluk Penyu Beach is not the responsibility of Pertamina RU IV because the incident was not in Pertamina's area, even though Pertamina has been partly responsible for tackling oil pollution in the Gulf of Turtle.

During 2011-2015, there were 4 (four) oil pollutions in the Cilacap Sea. In 2011 there were two cases of pollution in July and September by the Super Tanker *TT. Arenza XXVII* and the MT. Medelin Atlas Belawan IMO 8717245, and in April 2012 the MV. Indo Baruna V pollutes Cilacap's marine environment. The last in 2015 was in May 2015 tanker *MT. Martha Petrol*. The claim for compensation for oil pollution by tankers in the Cilacap Sea was made by fishermen to PT. Pertamina through direct claims. The calculation of compensation is calculated in the number of direct losses of fishermen who cannot go to sea during pollution multiplied by the number of fishermen registered as members of the All-Indonesian Fishermen Association (HNSI). The All-Indonesian Fishermen Association (HNSI) of Cilacap Regency has asked PT Pertamina RU IV Cilacap for compensation of Rp. 40.7 billion due to the oil leak.

HNSI Cilacap assesses, as a result of the incident fishermen were greatly harmed. Head of HNSI Cilacap Indon Cahyono said the spilled oil belonging to Pertamina, in addition to preventing fishermen from going to sea, also damaged nets and also polluted fishing boats.

Compensation was sought since 13,900 fishermen did not go to sea, their nets were ruined, and their boats and boats were filthy. Large numbers of fishermen who are unable to go to sea for 15 days compute the loss. Damaged nets will be replaced for a total of 21,200 pieces. Meanwhile, the expense of cleaning oil-covered ships is thousands of shriveled, jukung ships. This compensation claim is made to PT Pertamina RU IV Cilacap. The President of the Republic of Indonesia, multiple commissions in the DPR, Pertamina Pusat, and the Cilacap Regency Government all received a copy of the compensation application. The demand that is being asked for is to clean up the spill. Apart from demanding compensation, there are other demands, namely that Pertamina cleans up oil spills both on the surface of the sea and under the sea (Elly Kristianti Purwendah, 2019).

The failure of the claim for compensation due to the difficulty of calculating losses in the civil claim leaves the problem of losses for the environment and fishing communities as victims. Therefore, this paper will discuss the juridical aspect of environmental pollution as an environmental crime, so it takes a separate measuring instrument and certain considerations in order to fulfill the expected sense of justice. This paper aims to provide a new perspective in assessing an event related to environmental protection. The existence of a *zemiological perspective* will help assess the social damage caused.

Methodology

This research is normative legal research. The research data used in this study is secondary data. This research aims to be change oriented (*reform-oriented research*) (Marzuki, 2007), namely research those incentives evaluate the fulfillment of current regulations. The approach used in this study is a conceptual approach (*conceptual approach*). Specifications The qualitative analysis technique in this study is content analysis (*content analysis*).

Results and Discussion

Green Criminology and Marine Pollution

Concern for the destruction of nature which is increasingly concerning has inspired criminologists to develop a special scientific study. Natural damage that occurs due to human evil actions is the basis for the birth of a criminological study that focuses on environmental damage and hazards. The term "Green Criminology" was first introduced by Lynch in 1990. *Green Criminology* is a way of looking at crime that focuses on environmental issues. This term has been widely accepted by the public as a thought against environmental crime law enforcement.

According to White (2007) "*Green Criminology*" focuses on the conceptualized destruction of the relationship between the environment and humans and living things that exist in an ecosystem. Therefore, the relationship between environmental issues and criminology is a development that arises from the issue of concern over environmental problems.

The concept of *Green Criminology* is an ecological approach that focuses on environmental sustainability and environmental damage that arises as a result of interactions between humans and the environment, by applying the ideas of environmental ethics, ecology, and human rights. (White, 2009). *Green Criminology* as a branch of Criminology analyzes the issues of environmental violations within the scope of (1) what crimes happen to the environment; (2) What impact does the crime have on the environment; (3) How an environmental crime occurred; (4) Who are the perpetrators who commit crimes against the environment; (5) Why did the perpetrator commit the crime and what are the consequences of environmental damage to both human victims and the ecosystem where the crime occurred; and (6) What is the community's response to environmental crimes.

Green Criminology is directly related to the social conditions of society that lead to environmental crimes. Knowledge about environmental crimes is still not fully understood, the public needs to be given knowledge about the dangers of environmental crimes. Knowledge of a legal event is one of the factors of legal awareness, therefore it is necessary to introduce the term *Green Criminology* to the public. Most experts in the perspective of *Green Criminology* concentrate on explaining certain types of crimes or neglect of the environment. In doing so they have provided detailed descriptions and analyzes of phenomena such as illegal animal trade, illegal logging, toxic waste disposal, air pollution, and threats to biodiversity.

Pollution of marine waters in the form of *oil spills* occurs frequently. The causes are varied, ranging from *tanker accidents*, *offshore oil drilling activities*, *docking* (periodic ship repair including cleaning of ship tanks that dump oil into the sea), *scrapping* (ships that are no longer functioning properly so that ships are turned into scrap metal with the way the hull is cut into pieces) and so on (Wiratmaja et al., 2018). Usually, *oil spills* are caused by tanker accidents, usually accidents occur because there is a hull leak (especially ships that are still *single hull*), ships run aground, explosions or fires occur or ship collisions. In some cases, oil spills can also be caused by shallow waters, while the ship is fully loaded. Oil spills can also occur when ships are loading and unloading, both at ports and at sea. This loading and unloading process is very risky to cause accidents, such as broken pipes, leaks or mistakes made by the crew. However, oil spills from aboard activities, offshore drilling, and ship incidents are the primary sources of marine pollution. Oil spills in the water have always been a source of marine pollution that has drew the attention of the wider community because the results will be felt soon by the people along the shore and will do substantial damage to the living species that live there. An oil spill's consequences range from the most severe, such as a direct lethal effect on marine species, to a variety of sub-lethal effects that are typically only discovered after a period of time (Force et al., 2011).

Oil spills that occur in the sea are divided into two types, namely oil that is soluble in water and will float on the surface of the water and oil that sinks and accumulates in sediments as black deposits on sand and rocks on the beach. Oil that floats on the surface of the water can certainly cause the water to turn black and will disturb the organisms on the surface of the water. While oil that sinks and accumulates in sediments as black deposits on sand and rocks on the beach, will disturb interstitial organisms and intertidal organisms, intertidal organisms are organisms that live in tidal areas, the effect is when the oil reaches the sea.

shoreline, then organisms that are susceptible to oil such as crabs, amenone, molluscs and others will experience growth inhibition, and even death. However, in this intertidal area, even though the initial impact is very severe such as death and species loss, oil spills will quickly experience natural clean-up because in tidal areas generally recover quickly when the waves clean the oil-contaminated area very quickly (Naidu et al., 2021). Meanwhile, interstitial organisms, namely organisms that inhabit very narrow spaces between the grains of sand, will certainly be affected as well, because these oils will accumulate and deposit on the bottom of the water such as sand and rocks, and this will affect behavior. behavior, reproduction, and growth and development of animals that inhabit the area.

Zemiologiy Approach for Social Damage

Green criminology has begun to pay attention to environmental crimes, but this attention seems to be the same as classical criminology and positive criminology. Focusing on providing criminal sanctions and examining the causes of crime (criminal etiology). Another important thing that should be considered is the meaning of crime or environmental damage for the perpetrators, victims and nature itself. (Brisman, 2014) The view of critical criminology is not stuck on perpetrators who are usually called criminals because the perpetrator has violated the law. The critical view gives an assessment that all parties who have caused environmental damage should be called criminals, including policy makers and law makers. This means that they should also be criminalized (Lasslett, 2010).

Criminology as a science that studies crime and its causes will be increasingly outdated if it does not develop its studies. The definition of a crime is generally defined by state law. Not everything that is detrimental to society can be designated as a crime. Meanwhile, the damage and loss suffered by the community is clear. For example, in the case of environmental crimes the dialectical perspective between crime and social decay has also been discussed (Lasslett, 2010). Criminology must go beyond the limits of its scientific knowledge as long as it limits it. The birth of the *Zemiology* approach which was initiated by Hillyard and Tomb in 2005 which states that the *social harm* approach has broadened the meaning of crime which should be reviewed by the government and companies in looking at the welfare of the community. In essence, the social breakdown approach should be used to understand deviance. Hillyard and Tomb determined that social harm includes physical, emotional/psychological, economic, financial, and sexual harm.

The incident of the oil spill into the waters in the Cilacap Sea which occurred due to the accident of the King Fisher tanker carrying 600,000 barrels of crude oil in April 2000, (Brisman, 2014) MT Lucky Lady ship carrying seria crude (light oil 300 API) from Brunei Darussalam on 10 September 2004, (Pertamina UP IV, 2004) the Palu Sipat tanker which spilled 18,500 kilo liters of Middle Fuel Oil (MFO) or fuel oil in April 2008. Then the Alissa XVII tanker became the cause of the Middle Fuel Oil (MFO) oil spill in October 2010 (Ariany, 2011), the Alenza XXVII tanker unloading Arabic Light Crude Oil (ALC) in early July 2011, MT Medelin Atlas ship loading and unloading Arabian Light Crude Oil (ALC) in September 2011 and the MT Martha Petrol ship which loaded 24,000 kiloliters of MFO 180

and 5,000 kiloliters of MFO 380 on May 20, 2015 should not only be seen from the aspect of environmental damage without relating it to the social damage that occurred.

Claims for compensation depends on the preference of the marine environment as well as the government's blue economy concept should, of course, be the foundation for claims of losses made by polluters to restore victims of the marine ecosystem, given that the system has ratified several international instruments (Harahap, 1986). National law regarding provisions regulating compensation for oil pollution by tankers. Recently at Teluk Penyu Beach, Cilacap, there was a problem of prosecuting compensation for oil pollution. On Monday, May 25, 2015, a massive oil spill occurred in the Cilacap Sea. Residents and fishermen in Cilacap Regency, Central Java, were busy collecting the spilled crude oil that contaminated the tourist area of Teluk Penyu Beach. The leaks were caused by a breach in the pipeline for Pertamina Refinery Unit IV Cilacap's loading and unloading facilities, which was damaged.

Indicators of social harm such as: physical harm, psychological loss, economic loss and sexual harm should be considered. Physical losses in the form of damage to the marine environment, mental shock/stress experienced by fishermen due to unclear livelihoods, loss of livelihoods and the inability to play a role for women who usually get jobs from the economic activities of fishermen. Calculating social losses is related to access to social justice. When we combine the many sorts of environmental sustainability concepts with the concept of social justice, we can say that social justice is a prerequisite for environmental sustainability to be achieved.

Access to welfare in a social structure that may be used to accomplish ecological justice is the goal of social justice. For example, if there is a socially just social order, ecological justice can be accomplished, in which important natural resources (critical natural capital) are conserved for the purpose of human wellbeing through repair, replacement, or preservation initiatives.

The relation between social justice and ecological justice can be observed in Andrew Dobson's opinion, which states that social justice serves to foster long-term sustainability and development. Andrew presented an example of this functional relationship, stating that when social justice solves the problem of poverty, it has a positive impact on environmental sustainability (Sen, 2009). So, if you pay attention, in the relationship between social justice and ecological justice, there is an understanding of the rights to the welfare of life. The problem of unequal welfare and poverty can be identified as a problem of environmental damage. To quote Bartelmus (Bullard, 1994a):

> "Both poverty and affluence identified as the driving forces behind environmental degradation and resource depletion, sweepingly termed pollution of poverty and pollution of affluence. The former refers to the pressures of growing populations in poor countries on marginal and vulnerable lands, forests, and congested cities… In industrialized countries, on the other hand, impacts of high-level economic growth and consumption are responsible in most cases for environmental degradation "

The integration of justice into a governmental order is supposed to result in a welfare state based on social justice, which is inextricably linked to the community's prosperity and well-

being. Of course, it is inextricably linked to the concept of ecological justice. future generations as disadvantaged. In this regard, John Rawls offers two principles related to ecological justice, namely (Glotzbach, 2011):

a. Each present and future individual has an indefensible claim to a fully adequate collection of necessary and non-substitutable ecosystem services that is compatible with the same set for all;
b. Differences in the distribution of all other ecosystem services must be to the ultimate value of the present and future generations' least advantaged individuals.

The two principles can be discussed more applicable by W. Pedersen who mentions four principles of ecological justice, namely:

a. Precautionary principle (precautionary and prevention principles);
b. Compensation principle (polluter pays principle);
c. The principle of strict liability; and
d. Principles of sustainable development (sustainable development principle).

The *zemiology approach* or *social harm approach* expands the meaning of crime that can be reviewed by the government in dealing with oil pollution due to tanker accidents. The benefits of the social damage approach are in the form of calculating social compensation for both the polluted environment and humans or the community who use the polluted environmental function. The social damage approach through criminological studies brings benefits for civil compensation in terms of calculating immaterial losses and a deterrent effect for polluters. This is as regulated by the Ministry of Environment and Forestry in Appendix II of the Minister of Environment Regulation Number 7 of 2014 concerning Environmental Losses Due to Pollution and/or Environmental Damage, a method for calculating the cost of community losses due to pollution is described by calculating the *added cost* and *averted cost*. The community is experiencing changes in prices for agricultural products that are damaged by pollution. By the Minister of Environment, this cost is called an *added cost*. Such additional costs can be classified in terms of *dose-response functions*.

The social damage approach as a review of the crimes committed by the perpetrators is needed as the legality of calculating immaterial losses as costs that must be paid by the perpetrators of oil pollution due to the tanker accident to the victim. This kind of cost is an economic assessment of the impact of pollution/damage to health or commodities. The more severe the level of pollution, the higher the economic impact on the commodity. Therefore, the use of this method also requires information from the exact sciences regarding the physical impact of pollution. After this impact is known, the next step in this calculation is the determination of a valuation method to assess the physical change in units of money (Hanley & Spash, 2003). The income approach has limitations in the form of an inability to reflect recreational values and other values that approach also assumes that polluted/damaged resources have a market price, whereas market prices often fail to reflect the true environmental value (Lee et al., 2014).

Losses must be mapped; compensation in the sphere of civil law is defined as the provision of an equal amount of performance and achievement of a conduct that produces a loss to be experienced by one of the parties agreeing/consensus. During the period of the Dutch

East Indies, the regulation of revocation of rights *(onteigenings ordonantie / Staatsblad 1920-574) in hoofdstuk IV used the phrase schadeloostelling, which means nearly the same as schadevergoeding. Compensation for the landowner's losses (schade) and expenses (processkosten). In Indonesian, compensation is defined as money used to compensate people for their losses, according to a general dictionary* (Ariany, 2011). Harahap (1986) makes a similar argument, in which compensation is a "genuine loss" or "fietelijke nadeel" caused by a default act. A comparison of the circumstances not made by the debtor determines the genuine loss. According to Harahap, if we use a calculation, the amount of compensation is roughly the amount that is "fair" based on the value of the achievement that is the subject of the agreement vs the conditions that produced the default. Alternatively, others believe that the amount of compensation is "in the number of genuine losses" incurred by the creditor, resulting in a shortfall in the value of the profits he will get (Force et al., 2011).

Conclusion

Claims for compensation for oil pollution due to tanker accidents can be in the form of losses as regulated by the Ministry of Environment and Forestry in Attachment II to Regulation Number 7 of 2014 concerning Environmental Losses Due to Pollution and/or Environmental Damage, using the method of calculating the cost of community losses due to pollution. Through calculating additional costs and prevention costs. Losses can be calculated not only direct losses that appear immediately but include social losses in the form of additional costs. Additional costs such as these can be classified as costs based on a dose-response function. The zemiology approach or the Social Damage Approach in terms of claims for compensation has the benefit of calculating losses through a social damage approach. This approach has expanded the meaning of crime due to oil pollution by perpetrators, which requires a review by the government and companies in looking at the welfare of the community. This approach is very important to establish that social harm includes physical, emotional/psychological, economic/financial, and sexual harm. The social damage approach as a review of the crimes committed by the perpetrators is needed as the legality of calculating immaterial losses as costs that must be paid by the perpetrators of oil pollution due to the tanker accident to the victim. This kind of cost is an economic assessment of the impact of pollution/damage to health or commodities. The more severe the level of pollution, the higher the economic impact on the commodity. In solving cases of oil pollution due to tanker accidents, a zemiology approach is needed to calculate environmental losses and the community who use the environment. It takes a good understanding and political will of the stakeholders to look at cases of marine pollution by considering social damage in addition to environmental damage.

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