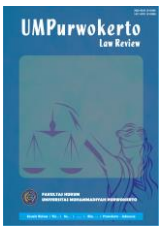

UMPurwokerto Law Review

Faculty of Law – Universitas Muhammadiyah Purwokerto
Vol. 3 No. 2, September 2022

Juridical Review On River Pollution Due To Liquid Waste Of The Tofu Factory In Kalisari Village Based On Regional Regulation Of Banyumas Regency Number 8 Of 2018 Regarding Wastewater Management

Wulanindra Kumala Ratri
Faculty Of Law, Universitas Muhammadiyah Purwokerto
E-mail: wulanindra.kumala@gmail.com

Abstract
Pollution is when a substance or energy is introduced into an environment by human activities or natural processes resulting in the climate not functioning correctly. Banyumas Regency is currently developing in various industrial activities, for example, the tofu industry in Kalisari Village, which causes pollution due to the entry of waste disposal that is not included in the WWTP. Based on this background, the problem formulation can be taken as a juridical review of river pollution due to tofu factory waste in Kalisari village based on Banyumas Regency Regulation Number 8 of 2018 concerning Wastewater Management and what the obstacles faced in the process of dealing. Tofu river pollution based on Regional Regulations Banyumas Regency Number 8 of 2018 concerning Wastewater Management. The research method in this study is the normative juridical method. Normative legal research is research with one type of legal research methodology whose analysis is based on applicable laws and regulations and is relevant to the legal issues that are the focus of this research. The normative juridical research method is carried out through a literature study of secondary data regarding the provisions of laws and regulations, research results, or others. Specifications The data used is descriptive. Based on the results of the analysis obtained based on the Banyumas Regency Regulation Number 8 of 2018 concerning Wastewater Management, it is stated that "everyone has the same rights in obtaining clean water, and the obstacles faced are because the pipes often come loose resulting in waste into the river."
Keywords: pollution, industry, tofu liquid waste.

Abstrak
Pencemaran adalah keadaan di mana suatu zat atau energi diintroduksikan ke dalam suatu lingkungan oleh kegiatan manusia atau oleh proses alam yang mengakibatkan lingkungan itu tidak berfungsi dengan baik. Kabupaten Banyumas saat ini berkembang dalam melakukan berbagai kegiatan industri contohnya industri tahu yang menyebabkan pencemaran karena masuknya sisa pembuangan limbah yang tidak masuk dalam IPAL. Berangkat dari latar belakang tersebut maka diambil rumusan masalah bagaimana tinjauan yuridis terhadap pencemaran sungai akibat limbah pabrik tahu di desa Kalisari berdasarkan Peraturan Daerah Kabupaten Banyumas Nomor 8 tahun 2018 tentang Pengelolaan Air Limbah dan apa saja kendala yang dihadapi dalam proses menangani pencemaran sungai limbah tahu berdasarkan Peraturan Daerah Kabupaten Banyumas Nomor 8 Tahun 2018 tentang Pengelolaan Air Limbah. Metode penelitian dalam penelitian ini yaitu metode yuridis normatif. Penelitian hukum normatif adalah penelitian dengan satu jenis metodologi penelitian hukum yang analisisnya didasarkan pada peraturan perundang-undangan yang berlaku dan relevan dengan permasalahan hukum yang menjadi fokus penelitian ini. Metode penelitian yuridis normatif dilakukan melalui studi pustaka terhadap data sekunder mengenai ketentuan peraturan perundang-undangan, hasil penelitian atau lainnya. Spesifikasi data yang digunakan yaitu deskriptif. Berdasarkan hasil analisis yang diperoleh yaitu berdasarkan Peraturan Daerah Peraturan Daerah Kabupaten Banyumas Nomor 8 Tahun 2018 tentang Pengelolaan Air Limbah disebutkan bahwa setiap orang memiliki hak yang sama dalam mendapatkan air bersih dan kendala yang dihadapi karena pipa sering kali terlepas dan mengakibatkan masuknya limbah ke sungai.
Kata kunci: *pencemaran, indutri, limbah cair tahu.*

I. Introduction

Environmental law is a field of law that has a peculiarity which Drupsteen calls applicable law, which contains elements of administrative law,[1]Environment based on the Big Indonesian Dictionary

[1] Dani Amran Hakim, "Politik Hukum Lingkungan Hidup di Indonesia Berdasarkan Undang-undang Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup," *Jurnal Ilmu Hukum, Vol.9, No. 2 (*2015).

(KBBI) has a broad meaning: the unity of space with all objects, power, circumstances, and living things, including humans and their behavior that affect life and the welfare of humans and other living creatures. Environmental regulations regulate environmental management and protect the environment from global warming or climate change. Many factors still affect the decline in environmental quality, for example, the amount of waste that is not managed correctly.[2]

The amount of waste that is not appropriately managed results in pollution and disturbing environmental sustainability. Pollution is when a substance or energy is introduced into an environment by human activities or natural processes that result in the environment not functioning correctly regarding health, welfare, and biological safety.[3] Meanwhile, according to Law Number 32 of 2009 concerning Environmental Protection and Management in Article 1 point 14, environmental pollution is the entry or inclusion of living things, substances, energy, or other components into the environment by human activities to exceed environmental quality standards. Life has been determined according to the juridical sense. Disposal of waste carried out without the WWTP process causes increased damage.[4]Parties or home industries carry out pollution. Low obedience, compliance, and public awareness exist to maintain a clean and healthy environment.[5]

In this case, environmental protection against pollution aims to protect the environment as a whole and its parts.[6] Historically, environmental policy has emerged as a reaction to economic activities that are not environmentally sound.[7] Environmental damage and pollution can be classified into several groups, namely:

1) Chronic in this condition, environmental damage and pollution occur progressively, but the process is slow.
2) Acute, in this condition, the destruction and pollution of the environment occur suddenly, and the condition is very severe.
3) It is dangerous, there is quite a heavy biological loss, and genetic damage occurs in the case of radioactivity.
4) Catastrophic, the death of living organisms is quite a lot, and living organisms become extinct.[8]

Banyumas Regency is currently developing in carrying out various industrial activities. Law Number 32 the Year 2009 Article 34 explains that every business and/or training must have UKL/UPL to minimize pollution, so waste management is required. According to the Banyumas Regency Regional Regulation Number 8 of 2018 concerning Wastewater Management in Article 1 number 33, it is explained that the soybean processing industry is a business and or activity that uses soybeans as the primary raw material that cannot replace with other materials. Article 1, number 16 in Regional Regulation Number 8 of 2018 concerning Wastewater Management explains industrial wastewater, namely water resulting from business and/or industrial activities in liquid. One of them is the tofu soybean industry, where the result is that there are two wastes, namely liquid and solid waste.

One of the villages in Banyumas Regency is Kalisari Village, which has long been known for its tofu production center. Kalari Village is included in the Cilongok District, and regionally, Kalisari Village consists of 2 (two) hamlets, 4 (four) Neighborhood Units, and 27 (twenty-seven) Neighborhood Units (RT). The area of Kalisari Village is 204,355 hectares (Ha) or 2.04 Km^2. The wheels of the Kalisari village economy are supported by the agricultural, livestock, fishery, and trade sectors. The well-known or the most widely known is the tofu cottage industry; there are around 260 SMEs.[9]

---

2 Rosmidah Hasibuan, "Analisis Dampak Limbah/Sampah Rumah Tangga Terhadap Pencemaran Lingkungan Hidup," *Jurnal Ilmiah Advokasi, Vol. 4, No. 1* (2016).

3 Nina Herlina, "Permasalahan Lingkungan Hidup dan Penegakan Hukum Lingkungan di Indonesia." *Jurnal Ilmiah Galuh Justisi, Vol. 3, No. 2* (2015).

4 Tedy Setiadi & Jefree Fahana, "Pengembangan Aplikasi untuk Menentukan Daerah Pencemaran Limbah Home Industry Berbasis Sistem Informasi Geografis," *Jurnal Informatika, Vol. 4, No. 2 (*2010).

5 Sutrisno, "Politik Perlindungan dan Pengelolaan Lingkungan Hidup," *Jurnal Hukum Vol. 18, No 3 (*2011).

6 Rahmadi Takdir, *Hukum Lingkungan di Indonesia* (Jakarta: PT. Raja Grafindo Persada 2011).

7 Akib Muhammad, *Politik Hukum Lingkungan* (Jakarta: Raja Grafindo Persada 2012).

8 Abdul Manan, "Pencemaran dan Perusakan Lingkungan dalam Perspektif Hukum Islam," *Jurnal Hukum dan Peradilan, Vol. 4, No.2 (*2015).

9 Identification and clarification with Warno Village Official on January 13, 2021.

The tofu processing industry must be based on regulations regarding processing tofu liquid waste, which is carried out to meet wastewater standards by the provisions issued by the Government. The processing of liquid tofu waste aims to eliminate the content of substances that can damage the environment. However, not all processes are carried out by regulations that can reduce waste in practice. As for the waste treatment process in Kalisari village, there are biolita divided into six based on the study results. Each biolita accommodates different tofu liquid waste, namely biolita 1 to 3 accommodates 10,000 liters, while biolita 4 to 6 accommodates 5,000 liters of liquid waste from 260 SMEs. The liquid waste that enters the biolita is used as bio-energy that can be developed, namely biogas. According to Government Regulation Number 101 of 2014 concerning Management of Hazardous and Toxic Waste, it is explained in Article 76 paragraph (2) point b regarding the use of B3 waste as a substitute for energy sources. Biogas is produced through the fermentation process of organic materials such as livestock waste and others.[10] However, even though there are six biotas with a capacity of thousands, not all of them can accommodate liquid waste because these biotas accommodate not only tofu liquid waste but also household waste. This waste is in the form of foam that settles and is white, and of course, if it continues to accumulate, it will cause an odor.

The biolita in Kalisari Village uses a gravity system where the craftsman's house with the lowest location of the biolita is sought, meaning that the gravity system must be lower than the tofu craftsman's house. Therefore, not all of them can enter these 6 (six) biolita because the house's distance or location is far from the biolita.

Based on this background, the authors are interested in compiling an article entitled **" Juridical Review On River Pollution Due To Liquid Waste Of The Tou Factory In Kalisari Village Based On Regional Regulation Of Banyumas Regency Number 8 Of 2018 Regarding Wastewater Management.**

II. Research Problems

1. What is the juridical review of river pollution due to tofu factory waste in Kalisari village based on Banyumas Regency Regulation Number 8 of 2018 concerning Wastewater Management?
2. What obstacles are faced in dealing with tofu river pollution based on the Banyumas Regency Regulation Number 8 of 2018 concerning Wastewater Management?

III. Research Methods

The research method in this study is the normative juridical method. Normative legal research is research with one type of legal research methodology based on applicable laws and regulations. It is relevant to the legal issues that focus on this research. [11] The normative juridical research method is carried out through a literature study of secondary data regarding the provisions of laws and regulations, research results, or others. Specifications The data used is descriptive. Descriptive research is research that describes a problem and reveals the facts as they are. The data source used is secondary data. Secondary data is an indirect data source, while secondary data is data that supports the needs of primary data, such as books, literature, and readings related to supporting research.[12] Secondary data collection is done through a literature study by collecting data from documents or other literature such as books or journals and conducted this research by gathering information and data using various materials available in the library, such as textbooks, findings of previous similar studies, articles, notes, and multiple journals related to problems to complete and obtain final results. Data on this research was obtained from collecting or registering related books or journals and identifying and clarifying legal facts with sources that complement secondary data. The data analysis

[10] Esty Ristianingsih, Arya Hadi Dharmawan & Eka Intan Kumala Putri, 2018, "Analisis Keberlanjutan Biogas Limbah Tahu Pedesaan (Studi Kasus Di Desa Kalisari, Kabupaten Banyumas)," *Jurnal Ilmu Lingkungan, Vol. 6, No. 2.*

[11] Kornelius Benus & Muhamad Azhar, "Metodologi Penelitian Hukum sebagai Instrumen Mengurai Permasalahan Hukum Kontemporer," *Jurnal Gema Keadilan, Vol. 7 No. 1 (*2020*).*

[12] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D* (Bandung: CV. Alfabeta 2017), 137.

method used is a descriptive research method. This test procedure produces descriptive data expressed by identifying and clarifying legal facts and literature studies defined in the form of descriptions. Data clarity is based on the Banyumas Regency Regional Regulation Number 8 of 2018 concerning Management Wastewater.

IV. Research Results And Discussion

1. Juridical Review of River Pollution Due to Tofu Factory Waste in Kalisari Village Based on Banyumas Regency Regulation Number 8 of 2018 concerning Wastewater Management

The river is an open channel formed naturally to irrigate rice fields that hold water and flow from upstream to downstream. In addition, the river is also a source of water that benefits human life, animals, and plants that live in it or the surrounding environment. Currently, many rivers are polluted, and not only river pollution but also environmental pollution that often occurs due to human activities that pay less attention to the environment. Therefore, if humans dispose of waste or throw tofu waste into the river, it will have consequences that will damage the ecosystem.[13]

According to Mahyudin et al., a river is said to be polluted if it cannot be used according to its normal function or is outside the threshold determined by the quality of it. [14] In Indonesia, industrial managers usually discharge industrial tofu liquid waste directly into the nearest water body. As is known, liquid tofu waste contains a lot of organic pollutants that the environment can explain.[15] Tofu liquid waste contains suspended solids that cause dirty water and the decay of industrial liquid tofu residue that emits an unpleasant odor and pollutes water sources.

Based on this, one river in Kalisari Village is exposed to liquid waste, which affects the environment or river. This liquid waste contains hazardous materials that are dumped into the waters.[16] Industrial wastewater knows its quality from the processes used. If the process air is good, the organic matter content in the exhaust air is usually low. Liquid tofu waste that enters other rivers will explore the river. If it continues to be used, it will cause health problems such as itching, diarrhea, cholera, and diseases, especially those related to feces. To prevent wastewater from becoming a source of contamination of water bodies, one must first treat it according to a certain threshold. Liquid waste is generated through washing, cooking, pressing, and printing. Liquid waste contains suspended solids, chemical oxygen demand, and high biological oxygen demand.

Generally, the concentration of hydrogenated exhaustions in the tofu industry tends to be acidic. Caused by pollution of organic matter from industrial tofu waste is a disturbance to biotic life caused by the impact of organic tofu waste. This content increases and is in line with the pollution due to the remaining liquid waste disposal and must be processed. Can achieve wastewater management through source reduction, reuse, and treatment.

One of the wastewater treatment processes is adding oxygen to the wastewater or entering into Biolita. Treating this liquid waste is necessary to reduce the negative impacts generated. If not treated before disposal, this liquid waste will cause considerable environmental pollution because it contains relatively high organic pollutants produced during milling. Degradation of protein and other organic substances can damage health, especially the sense of smell.[17]

---

[13] Muhammad Reza Novindri, Sri Hidayani & Elvi Zahara Lubis, "Application of Law No. 32 of 2009 in Processing of Liquid Waste in Javanese Tofu Trading Enterprises (Case Study at the Factory to Know Javanese Trading Business)", UNCTO: *Jurnal Ilmiah Hukum Vol. 2 No 1 (*2020*).*

[14] Mahyudin, Soemarno, dan Tri Budi Prayogo. "Analisis kualitas air dan strategi pengendalian pencemaran air Sungai Metro di Kota Kepanjen Kabupaten Malang, *Indonesian Journal of Environment and Sustainable Development, Vol. 6 No. 2 (*2015*).*

[15] Anggarini, S., Hidayat, N., Sunyata, N. M. S., & Wulandari, P. S, "Optimization of hydraulic retention time (HRT) and inoculums addition in wastewater treatment using anaerobic digestion system." *Jurnal Internasional*: *Agriculture and Agricultural Science Procedia* Vol. *3, (*2015*).*

[16] Identification and clarification with Warno Village Official on February 24, 2021.

[17] Samsudin, Winda, Makmur Selomo, and Muh Fajaruddin Natsir, "Pengolahan limbah cair industri tahu menjadi pupuk organik cair dengan penambahan effektive mikroorganisme-4 (EM-4)," *Jurnal Nasional Ilmu Kesehatan* Vol. 1, No. 2 (2018).

However, not all of this can be included in Biolita because the system still uses the gravity system. Although there have been associations of up to 6 (six) Biolitas, they cannot accommodate all the waste generated daily. Each of these six Biolitas was built in a different year, namely:

a. 1 (one) biolita in 2009;
b. biolita 2 (two) in 2010;
c. biolita 3 (three) in 2011;
d. biolita 4 (four) in 2014;
e. biolita 5 (five) in 2015;
f. biolita 6 (six) in 2016.

Biola, which stands for biogas from tofu waste, has different capacities. Every day 1 kilogram of soybeans can produce up to 10 liters of liquid waste, while there are 260 Tofu SMEs in the village. However, the Covid-19 pandemic in Indonesia has resulted in a slight decrease in production for tofu craftsmen depending on market capabilities.[18]

So when viewed from the Banyumas Regency Regulation Number 8 of 2018 Article 34 concerning Waste Water Management, it is explained that the community, in this case, also has the right to clean water that is used daily, including:

1) Everyone has the same right to get clean and healthy water while still considering the principles of public benefit, balance, and sustainability.
2) Everyone has the same right to obtain information regarding water quality and wastewater pollution management status.
3) Everyone has the right to participate in water quality management and control of wastewater pollution by the applicable laws and regulations.

In addition to Article 34, referring to Article 39 of the Banyumas Regency Regulation Number 8 of 2018 concerning Wastewater Management, it is also explained that administrative sanctions if business actors are caught still throwing waste into the river are as follows:

a. written warning;
b. cessation of activity;
c. freezing of business licenses and/or revocation of business licenses.

So Wastewater Management must be treated because if it is not treated, it will cause the water in the river to become a puddle of residual disposal. By research on the Peter River in Kalisari Village. Tofu liquid waste that does not enter the biota settles on the water's surface and, when the dry season, causes odors.

So this is when referring to the Banyumas Regency Regional Regulation Number 8 of 2018 Article 34 concerning Wastewater Management, where the community should get clean water, even though it is only river water here. Still, it precipitates the waste from the disposal, and this Lightning river also irrigates the residents' rice fields, where too much waste can lead to crop failure.

2. Constraints faced from Tofu Waste Pollution based on Banyumas Regency Regulation Number 8 of 2018 concerning Wastewater Management

Efforts to protect and manage the environment in overcoming waste pollution in the Peter River, Kalisari Village, face many obstacles, including those that arise from internal factors and external factors. These factors often appear in the environment around the community or come from outside the community. However, in the law enforcement process related to environmental problems, several obstacles still result in the ineffectiveness of supporting factors in law enforcement. The Government has many issued regulations to preserve the environment, but its implementation infield is still found in other factors that deviate from the rules.

a. Internal factors

1) The artisans' ignorance is essential in protecting the environment, including the river, which is the source of irrigation for rice fields. If the fields are continuously exposed to liquid waste, it can result in crop failure.

[18] Identification and clarification of legal facts with Biolita 6 Management on February 24, 2021 at 11.30 WIB..

2) Education level factor. Based on the identification and clarification of legal facts with Warno, village officials where the education level of the community is low, usually there is also low awareness of maintaining environmental order.
3) Community role factors. Most people think that God created natural resources for humans, so humans have the right to exploit them without paying attention to their sustainability. The Banyumas Regency Regional Regulation Article 35 reads, "Everyone is obliged to participate in efforts to preserve water quality and control water pollution in water sources through wastewater management." It also explains where everyone is obliged to participate, but this is not in line with the reality and what is in the regulation because not all people know the importance of protecting the environment, including river water, even though the community's role is very much needed.
4) Socialization factors that have not been optimal. There is still a lack of human resources to hold regular socialization in the community to protect the environment. Besides that, there is also a lack of human resources in a community to monitor the Biolita. Although there have been associations so far, there has been no socialization.

b. External Factors
In addition to the internal factors above, the external factor, namely, infrastructure facilities, are still limited and result in the waste network or paragon often leaking, which causes waste to be wasted and pooled around the Peter river and does not enter the Biolita which has provided for disposal. The waste. Detrimental to the river and polluted with unpleasant odors.

V. Conclusions

1. The river is an open channel formed naturally to irrigate rice fields that do not only hold water. Currently, many rivers are experiencing pollution, river pollution, and environmental pollution caused by human activities that do not pay attention to the environment, such as human negligence in disposing of waste or throwing tofu dregs into the river. Exposure to waste causes problems because tofu waste impacts the environment or rivers. So this is when referring to the Banyumas Regency Regional Regulation Number 8 of 2018 Article 34 concerning Wastewater Management, where the community should get clean water, even though it is only river water here. Still, it precipitates the waste from the disposal, and this Lightning river also irrigates the residents' rice fields, where too much waste can lead to crop failure.
2. Furthermore, there are two obstacles faced by tofu waste pollution, namely internal factors and external factors. There are 4 (four) factors for internal factors, namely ignorance of the craftsmen themselves, education level factors, community role factors, and socialization factors that are not optimal. Meanwhile, external factors come from inadequate facilities and infrastructure.

VI. Suggestions

1. It is hoped that there will be socialization about the importance of protecting the environment.
2. Increasing the introduction of the environment from an early age to children makes sense of concern for the environment grow.
3. Community participation is very effective if each individual or group understands to maintain environmental order. Besides that, community participation is highly recommended to comply with the Banyumas Regency Regulation Article 35.
4. Infrastructure is expected to be checked periodically so as not to cause puddles of residual tofu liquid waste.

References

Akib, Muhammad. *Politik Hukum Lingkungan*. Jakarta: Raja Grafindo Persada, 2012.

Anggarini, S., Hidayat, N., Sunyata, N. M. S., & Wulandari, P. S, "Optimization of hydraulic retention time (HRT) and inoculums addition in wastewater treatment using anaerobic digestion system." *Jurnal Internasional: Agriculture and Agricultural Science Procedia* Vol. *3,* (2015).

Ashabul, Kahpi. "Jaminan Konstitusional Terhadap Hak Atas Lingkungan Hidup di Indonesia." *Jurnal Al-Daulah 2 No 2 (2013).*

Banyumas Regency Regional Regulation Number 8 of 2018 concerning Wastewater Management.

Benus, Kornelius & Muhamad Azhar. "Metodologi Penelitian Hukum sebagai Instrumen Mengurai Permasalahan Hukum Kontemporer." *Jurnal Gema Keadilan 7 No.1 (2020).*

Government Regulation Number 101 of 2014 concerning Hazardous and Toxic Waste Management.

Hakim, Dani Amran. "Politik Hukum Lingkungan Hidup di Indonesia Berdasarkan Undang-Undang Nomor 32 Tahun 2009 Tentang Perlindungan dan Pengelolaan Lingkungan Hidup." *Jurnal Ilmu Hukum Vol.9 No.2 (2015).*

Herlina, Nina. "Permasalahan Lingkungan Hidup dan Penegakan Hukum Lingkungan di Indonesia." *Jurnal Ilmiah Galuh Justisi Vol.3, No.2 (2015).*

Law Number 32 of 2009 concerning Environmental Protection and Management.

Manan, Abdul. "Pencemaran Dan Perusakan Lingkungan Dalam Perspektif Hukum Islam," *Jurnal Hukum dan Peradilan Vol. 4, No.2 (2015).*

Rahmadi, Takdir. *Hukum Lingkungan di Indonesia*. Jakarta: PT. Raja Grafindo Persada, 2011.

Ristianingsih, Esty. "Arya Hadi Dharmawan & Eka Intan Kumala Putri. "Analisis Keberlanjutan Biogas Limbah Tahu Pedesaan (Studi Kasus Di Desa Kalisari, Kabupaten Banyumas)." *Jurnal Ilmu Lingkungan Vol.6, No. 2 (2018).*

Rosmidah, Hasibuan. "Analisis Dampak Limbah/Sampah Rumah Tangga Terhadap Pencemaran Lingkungan Hidup." *Jurnal Ilmiah Advokasi Vol.4, No.1 (2016).*

Samsudin, Winda, Makmur Selomo, and Muh Fajaruddin Natsir. "Pengolahan limbah cair industri tahu menjadi pupuk organik cair dengan penambahan effektive mikroorganisme-4 (EM-4)" *Jurnal Nasional Ilmu Kesehatan* Vol. 1, No. 2 (2018).

Setiadi, Tedy & Jefree Fahana. "Pengembangan Aplikasi Untuk Menentukan Daerah Pencemaran Limbah Home Industry Berbasis Sistem Informasi Geografis", *Jurnal Informatika Vol.4, No.2 (2010).*

Sugiyono. *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: CV. Alfabeta, 2017.

Sutrisno. "Politik Perlindungan dan Pengelolaan Lingkungan Hidup", *Jurnal Hukum 18, No 3 (2011).*