



Law Enforcement Against Hazardous Waste Pollution Links to Environmental Protection (PT. Kimu Case Study)

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Abstract - The purpose of this study is to determine the law enforcement against environmental pollution due to hazardous and toxic waste by PT Kimu Sukses Abadi. Regulations that regulate the problem of surrounding defilement made from industry enterprises that make hazardous and toxic mill cesspits require laws that can keep effect negative on their around neighborhood, videlicet reasonable laws. The inquiry of this learn is how to enforce criminal juristic opposed to conservationist pollution due to risk plus virulent waste and how is the element that hinders the effectiveness of Institute Numeric 32 of 2009 regarding ecological safeguard with administration. The near process utilized via the writer of researchers observational juridical, which is a study that emphasizes main statutory resources, namely interviews plus observations. The findings from this examination explain the weakness belonging to lawful Implementation inside handling alongside surrounding contamination due to hazardous and toxic materials carried out by companies due to negligence and weak supervision of law enforcement officials or related agencies that cause pollution of the surrounding environment so that river water becomes polluted and watersheds become damaged and very detrimental to the community and the Role of Local Governments in Law Enforcement Against B3 Waste Dirtiness is linked to Law Number 32 of 2009 pertains to the safeguarding and administration of environmental resources, namely 1) Supervision also Monitoring, 2) Implementation via administrative sanctions by the Regional Government, 3) The importance of coordination between the Regional Government and central agencies.

Keywords: Environmental Law, Law Enforcement, Waste.

I. INTRODUCTION

Environmental pollution, particularly from industrial activities that generate hazardous and toxic waste, is an urgent and growing problem that demands immediate attention. The uncontrolled discharge of these substances damages ecosystems and poses significant risks to human health and biodiversity. As industrialization increases, the potential for catastrophic environmental damage rises, underscoring the need for strict regulations to protect our environment. The environment can be interpreted as an object, power, condition that exists during a location either room anywhere person or existing items live also have impact those resides (Alfazani & A, 2021). In an environmental dictionary compiled by Michael Allaby, the environment can be interpreted as the corporeal, compound plus organic situation neighboring plus living things. Meanwhile, according to Larry L Wolf and Noughton, it means that the environment with entire external factors is biotic also physique that directly affects the growth, widening, progress plus facsimile of human beings (Triadi & Singh, 2024).

In addition, the environment is often negatively criticized in terms of pollution. Based on Rusmin (2024) pollution is one of the things that becomes an environmental problem, if this environmental problem is not found a solution, the sustainability of people's lives will be worrying because nature is a source of fulfillment of all the needs of human life such as providers of water, food, medicines. natural damage is equal to the carrying capacity of human life. Water is a critical resource for all living beings, and its quality directly affects human health. Unfortunately, industrial activities often lead to the introduction of organic and inorganic pollutants into water bodies. The improper disposal of industrial wastewater can have severe consequences, including alterations in the physical properties of water, harm to aquatic flora and fauna, and broader environmental damage (Pranyoto, 2024).

Liquid waste, which refers to byproducts from various processes including industrial, domestic, and agricultural activities can vary widely in composition. When industries discharge liquid waste that does not meet quality standards, the environmental balance can be severely disrupted, especially if this waste enters receiving water bodies without treatment. Such pollution not only diminishes the aesthetic value of the environment but can also render water unsuitable for consumption and other vital uses (Paramita & Ningrum, 2020). Liquid waste produced by an industry that is disposed of is not in accordance with quality standards, it can result in a negative impact on the environmental balance if the waste is discharged into a receiving water body (for example, a river) without first treatment. Pollution to the environment can have a wide range of consequences if the number of compounds contained in the waste exceeds the predetermined level, then the water can no longer be used for life purposes as it should. Sewage pollution has many adverse consequences. The lightest is the decline in the beauty of the environment (Rahmatiar et al., 2021).

The government with its policy in an effort to control the impact of sustainable contamination is established concerning Environmental Protection and Management Law Number 32 of 2009 which is currently used in Indonesia as a foundation inside fields of conservationist operation (Nusalawo et al., 2022). Founded on Instituted Numeric 32 of 2009 about Neighborhood Management and Protection regarding the substance or content of Article 60 which reads "everybody is forbidden by disposing rubbish plus/or else resources toward neighborhood press absent authorization", this applies to "everyone", namely both individuals and legal entities that dump waste into environmental media without permission. According to Article 61 paragraph (1), the permit can be obtained by submitting an application for a permit until a Clearic, vice-regent, ruler/provost form on their command (Soemantri et al., 2017).

Even though regulations have been made, pollution still often occurs, one of which is carried out by companies that operate in the field of Printing that produce Carton Boxes and Plastic Boxes using the ink material contains waste of the Dangerous and Poisonous Substance (B3) group which can pollute the environment if not processed (Astiti et al., 2023). The company as the main actor of environmental pollution due to the disposal of Hazardous and Toxic Materials (B3) waste that is not in accordance with procedures or even negligent in carrying out the final filtration process of wastewater causes river water to become polluted and the watershed becomes damaged and very detrimental to the community around the watershed because the river is used by the community (Izzati et al., 2022).

Regarding the above, there is a case of neighborhood contamination because of B3 wastefulness, namely that case about B3 waste disposal by PT Kimu Sukses Abadi in Bekasi Regency became a concern after the company was proven to pollute the environment, especially the Sadang River stream. The waste that is disposed of comes from the printing ink washing process which contains hazardous and toxic materials (B3). In addition, this company is known to do not have a valid operational license and adequate waste treatment facilities. Reports of people who saw illegal waste disposal activities triggered an inspection by the Bekasi Regency Environment Agency (DLH). As a result, the company was given administrative sanctions and forced to temporarily stop operational activities. The local government emphasized that if the company does not immediately improve its waste management system, there is a possibility that it will be permanently closed.

Law No. 32/2009 on Environmental Protection and Management states that the use of natural resources must be in harmony, harmonious, and balanced with environmental functions. As a consequence, development policies, plans, and/or programs must be oriented towards preserving the environment and realizing sustainable development goals. one of the uses of resources in the form of waste is "PT Kimu Sukses Abadi". PT Kimu Sukses Abadi is a company engaged in manufacturing with products in the form of Corrograted Carton Box and Plastic Box Industry. there are 6 violations committed by PT Kimu Sukses Abadi, namely discharging wastewater that merges with rainwater drainage channels into water bodies; and does not yet have a hazardous waste storage area in accordance with technical provisions. Based on the PLT of the Environmental Agency, they gave directions to PT Kimu Sukses Abadi in overcoming environmental pollution and licensing problems of the company.

From the above case, the author exists fascinated inside manage investigation with the caption regulation Enforcement Against Environmental Pollution Due to Hazardous and Toxic Waste (B3) in connection with Law Number 32 of 2009 concerning Environmental Protection and Management (Case Study at PT. Kimu Eternal Success). Based on the background that has been made, a main problem can be formulated, namely: How is the role of the local government in enforcing the law against environmental pollution due to hazardous waste and B3 waste by PT Kimu Sukses Abadi related to Law Number 32 of 2009 concerning Environmental Protection and Management?

II. METHOD

The method used in this research is an empirical approach by collecting data through interviews, observations, and field studies where this relates to explanatory descriptive, namely a study that aims to provide facts that describe the state of the object or problem under study without drawing general conclusions. The data collection technique used in this research is a field study of primary data obtained through interviews and observations.

III. RESULT AND DISCUSSION

a. Statute Execution Against Environmental Spoilage because of Cesspit of Hazardous and Toxic Materials

According to Sudikno Mertokusumo, there are 3 elements that must be considered in carrying out law enforcement, namely:

- a) Legal certainty (*rechtssicherheit*) is a guarantee that the law will be implemented, that those who have the right to demand the law will be properly implemented.
- b) Usefulness (*zweckmassigkeit*) states that law enforcement/law enforcement must provide usefulness/benefits to the community.
- c) Justice (*gerechtigheit*) explains that law enforcement/law enforcement must be carried out as fairly as possible. The law is general, generalizing, and can bind everyone. Anyone who commits a crime must be punished as justly as possible (Arfa, 2019)

Environmental law enforcement is part of a policy planning of environmental management in order to realize a sustainable and healthy environment. Based on the opinion of Andi Hamzah who stated that law enforcement is the last link in the regulatory chain of policy planning about the environment, the order of which is as follows: legislation (*wet en regelgeving*), standard setting (*norm setting, norm zetting*), licencing (*vergunning verlening*), implementation (*implementatie, uitvoering*), and law enforcement (*law enforcement, rechts handhaving*) (Angga, 2019).

To find out if an environment is affected by pollution or damage, a scientific approach is needed, namely by conducting environmental research with appropriate procedures or steps. In daily life, there are so many events that are considered environmental pollution, for example, irrigation where the water suddenly changes color, a river that has a brownish color, or well water that has a different smell. Actually, this is not environmental pollution, we people often consider pollution subjectively without looking at the criteria or elements of environmental pollution. The meaning of this research is to find out the Enforcement of Villain Law against environmental contamination caused by hazardous and toxic waste, and to identify the factors

that obstruct as effectiveness of Law Number 32 of 2009 regarding Environmental Conservation and Management.

The definition of law enforcement can also be interpreted as the administration of law by law enforcement officials and by every person who has interests within alignment alongside separate jurisdiction according toward laws plus regulations. Criminal law enforcement is a unified process that begins with investigation, investigation, prosecution, trial and ends with correction. The term law enforcement in Indonesia carries the idea that law enforcement is always enforced, and some believe that law enforcement is only related to criminal law. This mindset is reinforced by the habit of involving the Police, Prosecutors and Judges. There is no mention of government officials who actually enforce the law under the Environmental Law Implementation Memorandum, to supervise and enforce (or threaten) the employ of managerial, offender either social means until regulate universally recognized and individual laws and regulations.

Criminal law is a science, therefore the review of materials regarding criminal law is mainly carried out from human responsibility for "punishable acts". If a person violates criminal regulations, then as a result that human may feel obligated to his behaviors so that he can be punished/sanctioned (except for crazy people, minors, etc.). The motive of penal legislation is to provide a system in many materials of the law, the principles are connected to each other so that they can be included in one system. In essence, reflecting the nature of criminal law as a form of public law, the primary objective of criminal law is to safeguard the community's interests as a whole from threatening or harmful actions, whether they arise from individuals or groups (such as organizations). Contains acts that can be punished and their criminal threats. Those own have been managed within two diaries (Crime) plus three books (Violation) of the Criminal rule. The difference lies in the penalties that are endangered alongside incarceration toward a maximum of one year.

Lawbreaker jurisprudence sanctions own a preventative impact at the incident of contravention of legitimate standard (Theorie Des Psychischen Zwanges/Teachings of Psychological Coercion). The definition of the environment at first journal number 1 of Law Number 32 of 2009 environmental management involves the integration of space with all elements, forces, conditions, and living organisms, including humans and their actions, that impact the natural world, the sustainability of life, and the overall well-being of other living beings. Based on the above definition, Environment can be defined as the interconnectedness of space with all objects, forces, conditions, and living organisms, including humans and their actions, that influence the survival and well-being of both people and other forms of life.

Waste dumping is an activity of discarding, placing and/or materials in quantity, concentration, time and location with certain requirements into the environmental media as stipulated in Article 1 formed by Law Number 32 of 2009 concerning Environmental Protection and Management and as referred to in Government Regulation Number 82 of 2001 regarding the management of water quality and the control of water pollution, namely that disposal in the sense of dumping is carried out not through wastewater sewers, but through packaging then lifted and discharged into environmental media, for example the sea or soil, while wastewater disposal as regulated in Government Regulation Number 82 of 2001 regarding the management of water quality and the oversight of water pollution is carried out through sewers which then enter rivers, lakes and/or into the ground. Meanwhile, which are signified via risky plus noxious rubbish (B3) are substances, energy, and other elements that, by their nature, concentration, or quantity, can directly or indirectly pollute or pose a threat to the environment, well as to the health and survival of humans and other living organisms, as outlined in Law Numeric 32 of 2009 on environmental safeguarding and administration.

According to the Environmental Supervisor of Bekasi Regency, the company does not have a business license and its infrastructure is inadequate for temporary storage and waste management and the waste comes from printing ink with the waste group about unsafe plus venomous fabric (B3) also ink causes environmental pollution (Sebayang et al., 2024). It's implementation within Legislation Numeric 32 of 2009 as to surroundings management plus protection contains no lived competent to accommodate environmental problems optimally.

For the sake of environmental specificity, solving increasingly complex problems requires comprehensive attention. The firmness of these parts about neighborhood rules must exist allowed to be a means of security for environmentally sound development. Environmental law in the implementation of development that functions to prevent or reduce biophysical contamination or annihilation. Into increase, the Environmental verdict has a function as a means of law enforcement for acts that damage or pollute natural resources. The strengthening included on lawful Numeric 32 of 2009 about Sustainable administration plus protection are those principles about Protection and Organizing for alive Surroundings which is established from good governance with reprisal also rule upholding this need the combination about indicators of translucency, involvement, responsibility, plus fairness.

These issue of environmental protection requires legal arrangements that function as regulations, and the prevention of environmental pollution requires attention as a form of general prevention. This prevention effort is very necessary so that it can be known how far the maximum need for the utilization of natural assets plus the surroundings for human and development interests can be known. Because, if we supervise the procurement, it will have an impact on the abuse of legal provisions that exceed needs. Therefore, demand reduction and supply reduction programs need to be carefully analyzed and national and comprehensive policies are needed. The settlement of environmental disputes must not only be resolved with criminal law instruments, because the application of criminal sanctions is the ultimate remedium. This shows that criminal law is a final act, before other efforts using other instruments are effective again. Efforts to prevent defilement also/or devastation belonging to the Surroundings remain highly much needed, the nature of trust (personal attitude) from regulation enforcers originating from the moral ethics of law enforcers, will be able to arouse the spirit of law enforcement, will be able to arouse community motivation to come down as well

. Social communication that exists between the community and law enforcement, will form a working relationship (network line), as a form of information network that is important both for the sake of the effectiveness of social supervision, as well as for law enforcement, which ultimately creates a social control institution for the community (Maulana et al., 2020). Preventive environmental law enforcement. This principle execution means that engaged control is carried out in compliance with environmental rules without direct incidents involving concrete events that raise suspicions that a legal regulation has been violated by polluters. Instruments in supervision, and the use of authority that is supervisory through sampling, stopping factory machines and so on. The main environmental law enforcement agencies are government officials who are tasked with granting permits and are able to handle the occurrence of pollution and/or environmental destruction.

Oppressive surroundings lawful enforcement. This law enforcement is conducted in the event that every act that is denied has violated the guidelines plus objectives toward straight until the forbidden serve. The handling of criminal sanctions generally always follows the form of violation of policies plus ordinarily can not recover implications of the violation. The main environmental law enforcement parties are the police, judges, prosecutors, and legal advisors. To avoid repeated criminal sanctions, the perpetrators of environmental pollution themselves should stop the situation. Legal awareness of polluters is actually required to create a healthy, beautiful, and comfortable living environment for all communities. Not only law enforcers or the government who act, the community is expected to always actively participate in environmental law enforcement, for example, reporting to law enforcement. opportunities given to the community to participate can be done by the community.

B3 waste management requires sophisticated equipment so that it spends quite a lot of funds. In Indonesia, every industry that produces B3 waste does not need to build a waste treatment unit because it is not efficient and economical. However, B3 waste must be collected and stored properly so that it is safe for the environment. After the amount is sufficient, this waste is sent to a company that specializes in managing B3 waste. Environmental criminal law enforcement is needed to follow up on cases related to environmental pollution or environmental crimes, especially the consequences of corporate liquid waste because without

us realizing it, fluid refuse are so damaging to surroundings plus living things. So the active role of Law Enforcement Officials or other agencies is needed.

Dumping in Article First, section Twenty-Four of Law Number 32 of 2009 on Environmental Protection and Management specifies that: Throw out (Disposal) of Unsafe and Venomous debris (B3) is an activity that disposes, places, and/or puts waste and/or materials in quantity. Assiduousness, period, plus location with certain requirements to certain environmental media. Dumping of dangerous also corrupt dissipate (B3) inside the flow can only be carried out if the Hazardous and Toxic Waste (B3) caused by pursuit in the sea cannot be managed on land based on environmental, technical, and economic considerations. Dumping (disposal) of Hazardous and Toxic Waste (B3) can be carried out if it has met existing or applicable requirements such as connected to the type, quality of perilous plus Noxious Squander (B3), with the location of the disposal site. So that Dumping (disposal) of Hazardous and Toxic Waste (B3) shall not cause harm to humans, or living things, in these surroundings.

The offense of disposing of hazardous and toxic waste (B3) is outlined in Article 104 of Law Number 32 of 2009 related to environmental protection and management, which includes: Any individual who disposes of waste and/or materials into environmental media without the necessary permit, as stated in Article 60, shall face a maximum imprisonment of three years and may be fined up to Rp. 3,000,000,000.00 (three billion rupiah).

The elements of a criminal act from Article 104 are:

1. Everyone;
2. Discharging waste and/or substances into environmental media.;
3. Unaccompanied by permission as mentioned in Article 60;
4. Sentenced to imprisonment for up to 3 (three) years of imprisonment and a fine of up to Rp. 3,000,000,000.00 (three billion rupiah) (Laia, 2021).

The subjective element of Article 104 is "everyone". Although the element of intentionality is not formulated explicitly or explicitly in the formulation of the delicacies, it still exists even though it is considered tacitly. The point is that the violation contained in article 104 is impossible to commit because of the negligence committed because there is a diction of without permission which means that the perpetrator actually knows that if disposing of squander plus/either matter in towards the neighborhood media, there must be an allow or obtain permission first.

Meanwhile, an objective element is found in dumping, while the object of the act is waste and/or materials. Usually, the violation of dumping delict in article 104 is caused without permission to the environmental media (Ali, 2022) Therefore, companies that have polluted the environment by dumping rivers must be sanctioned, namely based on Article 104 of Law Number 32 of 2009 concerning Environmental Protection and Management.

b. The Role of Local Governments in Law Enforcement Against B3 Waste Pollution is linked to Law Number 32 of 2009 concerning Environmental Protection and Management

Environmental protection and management is actually a duty and authority for the government and the community to achieve environmental goals based on Law Number 32 of 2009. A good and healthy environment will have a positive impact on the living things around it, be it in the form of safety, health, survival of life, utilization of natural resources, sustainable development, and so on.

Regarding the case regarding the disposal of B3 waste by PT Kimu Sukses Abadi in Bekasi Regency, it became a concern after the company was proven to pollute the environment, especially the Sadang River stream. The waste that is disposed of comes from the printing ink washing process which contains hazardous and toxic materials (B3). In addition, this company is known to do not have a valid operational license and adequate waste treatment facilities. Reports of people who saw illegal waste disposal activities triggered an inspection by the Bekasi Regency Environment Agency (DLH). As a result, the company was given administrative sanctions and forced to temporarily stop operational activities. The local

government emphasized that if the company does not immediately improve its waste management system, there is a possibility that it will be permanently closed.

Regarding the role of the Regional Government in law enforcement against the pollution of Hazardous and Toxic Materials (B3) waste in accordance with the provisions of Law Number 32 of 2009 concerning Environmental Protection and Management, starting from the legal basis of the Authority of the Regional Government in environmental management based on Law No. 32 of 2009, including:

a) Supervision and Monitoring

A description of the role of the Regional Government in supervising and monitoring business actors and activities that produce B3 waste, including reporting, inspection, and verification mechanisms. Supervision and Monitoring by the Regional Government in terms of supervision and monitoring is an important step in law enforcement efforts against B3 waste pollution. The Regional Government has a central role in ensuring that business actors or activities that produce B3 waste carry out their obligations in accordance with applicable laws and regulations. The details of the supervision and monitoring carried out are as follows:

b) Supervision of Business Actors or Activities

Identification and Data Collection of Business Actors: The Regional Government identifies and collects data on all business actors or activities in their areas that produce B3 waste. This process includes collecting data on the type of activity, the volume of B3 waste production, the management method used, and the environmental permits owned. Inspection of Environmental Permits and B3 Waste Management Documents: The Regional Government is tasked with checking the completeness and validity of environmental permits owned by business actors, including Environmental Impact Analysis (EIA), Environmental Management Efforts and Environmental Monitoring Efforts (UKL-UPL), and B3 Waste Management Plan. This ensures that business actors comply with the requirements in B3 waste management.

c) Implementation of Inspection and Sampling

Routine Inspections and Surprise Inspections: The Regional Government periodically conducts routine inspections of business actors to ensure that they carry out B3 waste management in accordance with the provisions. In addition, sudden inspections can be carried out to check the compliance of business actors, especially if there are reports from the public or indications of violations. Sampling and Laboratory Analysis: In inspection activities, the Regional Government can sample B3 waste from the location of business actors or activities. These samples are then analyzed in the laboratory to determine whether the waste produced exceeds the environmental quality standards that have been set.

d) Monitoring Terhadap Pelaksanaan Pengelolaan Limbah B3

Supervision of the Processing and Storage Process: The Regional Government monitors the implementation of B3 waste management, starting from the processing process, temporary storage, to transportation and final disposal. This supervision ensures that business actors implement safe and standard waste management methods. Monitoring the Application of B3 Waste Management Technology: The Regional Government monitors the use of technology used by business actors in B3 waste management. This is to ensure that the technology used is effective in reducing or eliminating negative impacts on the environment.

e) Reporting and Surveillance Information System

Preparation of Supervision Results Report: Regional Governments are required to prepare periodic reports on the results of supervision and monitoring. This report contains findings during the supervision process, the level of compliance of business actors, and recommendations for actions that must be taken by business actors to improve or improve B3 waste management.

Development of Supervisory Information Systems: To support the effectiveness of supervision, local governments can develop technology-based information systems that allow real-time monitoring of business actors. This system can record and store B3 waste

management data, facilitate access to information, and facilitate reporting by the public regarding alleged violations.

f) Follow-up of Supervision Results

Giving Reprimands and Administrative Sanctions: Based on the results of supervision, if violations are found in B3 waste management, the Regional Government can provide reprimands, written warnings, or other administrative sanctions in accordance with the provisions of laws and regulations. The sanction aims to encourage business actors to comply with the provisions of B3 waste management.

Coordination with Law Enforcement Agencies, If the violations found are in the serious category or have the potential to cause a large environmental impact, the Regional Government can coordinate with law enforcement agencies such as the police and the prosecutor's office to conduct further investigations and bring the case to the legal realm.

1) Implementation of Administrative Sanctions and Corrective Actions

The application of administrative sanctions by the Regional Government, such as written warnings, government coercion, freezing of environmental permits, and revocation of environmental permits. A case study on the application of administrative sanctions against violations of B3 waste management by business actors. Based on the provisions of Law Number 32 of 2009 concerning Environmental Protection and Management, the Regional Government has the authority to apply various types of administrative sanctions against business actors or activities that violate the provisions of B3 waste management. The types of administrative sanctions that can be given include:

2) Written Warning:

Written warnings are given to business actors who are first found to have committed minor violations in B3 waste management, such as not completing waste management documents or not reporting waste management activities regularly. This warning aims to remind business actors to immediately correct mistakes and comply with applicable regulations.

3) Government Coercion (Dwangsom):

Government coercion is an instrument that requires business actors to take certain actions to correct violations that have occurred. For example, the Regional Government can order business actors to immediately treat B3 waste that has polluted the environment, clean up contaminated locations, or adopt more effective waste treatment technology. If business actors do not carry out this order within the stipulated period, they may be subject to heavier sanctions.

4) Freeze of Environmental Permits:

The freezing of environmental permits can be applied if business actors continue to not comply with written warnings or government coercion. In this case, business actors are prohibited from carrying out activities that produce B3 waste until the ordered corrective actions have been properly implemented. Freezing this permit can have a serious impact on the operations of business actors and is a decisive step to ensure compliance.

5) Revocation of Environmental Permits:

The sanction of revocation of environmental permits is the most decisive action that can be applied by the Regional Government against business actors who commit gross, repeated violations, or do not heed previous sanctions. With the revocation of the permit, business actors are no longer allowed to carry out activities that produce B3 waste, so their activities must be permanently stopped. This step is taken if the activity is proven to cause significant and irreparable pollution or environmental damage.

6) Coordination with Related Agencies and Law Enforcement Officials

The importance of coordination between the Regional Government and central agencies, the police, the prosecutor's office, and court institutions in law enforcement against

B3 waste violations. The process of enforcing criminal and civil laws in the case of B3 waste pollution and the role of the Regional Government as a facilitator and supervisor.

IV. CONCLUSION

Based on the research findings, several key conclusions emerge. First, the enforcement of criminal law against environmental pollution caused by hazardous and toxic waste (B3) is notably weak. This ineffectiveness stems from negligence and insufficient oversight by law enforcement officials, allowing companies to evade accountability. Second, local governments play a pivotal role in enforcing environmental protection laws, particularly Law Number 32 of 2009. Their responsibilities include supervising and monitoring businesses that produce hazardous waste through robust reporting, inspection, and verification processes. Additionally, local governments must apply administrative sanctions effectively, which may involve issuing written warnings, enforcing government coercion, and suspending or revoking environmental permits as necessary.

Lastly, enhancing coordination among local governments, central agencies, police, prosecutors, and courts is essential to strengthen law enforcement against hazardous waste violations. Collectively, these measures highlight the urgent need for improved enforcement mechanisms and inter-agency collaboration to effectively combat environmental pollution. The recommendations for future research are to conduct regular training for law enforcement officers to understand environmental regulations and pollution case investigation techniques, increase the number and quality of inspections of companies that produce hazardous waste to detect violations earlier, and provide financial and technical support for programs that focus on hazardous waste management in the regions.

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