

# Improving the Effectiveness of Legal Instruments in Addressing Environmental Pollution to Protect Public Health

Adi Herisasono, Rommy Hardyansah, Reny Nuraini, Yeni Vitrianingsih

Sunan Giri University of Surabaya, Indonesia

## ARTICLE INFO

### Article history:

Received 28 April 2021

Revised 8 May 2021

Accepted 2 June 2021

### Key words:

Legal instruments,  
Environmental pollution,  
Public health,  
Legal enforcement,  
Environmental policy,  
Transparency,  
Sustainability.

## ABSTRACT

*This research discusses the effectiveness of legal instruments in regulating environmental pollution and its effect on public health. While there are various regulations designed to protect the environment, the main challenge faced is in inconsistent implementation and legal enforcement. Environmental pollution, which is often uncontrolled, has a direct impact on the quality of public health. This research shows that while legal frameworks such as the Clean Air Act in the United States have shown success in reducing pollutant emissions, weak legal enforcement still hinders the achievement of optimal results. Therefore, there is a need for improved capacity of legal enforcement agencies, stricter oversight, and cross-sector collaboration to strengthen the effectiveness of existing regulations. This research suggests the need for legal counseling and strengthening transparency in the legal enforcement process to ensure the sustainability of public health protection.*

## INTRODUCTION

A healthy environment is an essential pillar in creating a prosperous society. In recent decades, increasing industrialization and urbanization have triggered significant degradation of environmental quality, including air, water and soil pollution. This condition not only jeopardizes the sustainability of ecosystems, but also has direct implications for human health. The link between environmental quality and societies' quality of life is becoming increasingly undeniable, especially when infectious and chronic diseases emerge as a result of a polluted environment (Grappasonni, 2018)

The government has a great responsibility in guaranteeing the society's right to an environment that is suitable for living. For this reason, legal instruments are the main instruments in maintaining and regulating the balance between development and environmental protection (Kelishadi, 2012). Environmental health legal is present to regulate standards and mechanisms for preventing and overcoming pollution that has an impact on public health (Frumkin, 2016). The power of legal norms in providing protection is not only limited to sanctions, but also functions as social control over activities that can damage the environment and endanger human life (Bhat et al., 2017).

In practice, the implementation of environmental health legal requirements faces its own complexities. There is often an inequality between the regulations that have been formulated and the realization in the field. Many cases of pollution that have a wide impact on society are not dealt with firmly, or even ignored. As a result, victims of environmental damage often do not receive proper legal protection, and the perpetrators of pollution do not receive appropriate punishment for their actions. This raises fundamental questions about the effectiveness of the legal system in responding to threats to environmental health (Koehler et al., 2018). If existing regulations are unable to provide a deterrent effect or do not guarantee justice for affected parties, then the law loses its function as a tool for public protection.

Environmental health issues are not only about ecological damage, but also about justice and human rights. Societies, especially those in the vicinity of industrial areas, are often victims of policies that are not in favor of public health. Unfortunately, they often do not have access to information, legal aid, or political power to defend themselves. Their protection does not only require an ecological approach, but must also be strengthened through a juridical approach that guarantees the right to a healthy environment as part of the right to a dignified life (Dogaru, 2014).

\* Corresponding author, email address: [dr.rommyhardyansah@gmail.com](mailto:dr.rommyhardyansah@gmail.com)

One of the main problems in environmental health legal is the weak legal enforcement of environmental pollution offenses. While the legal framework governing environmental protection is in place, its implementation is often ineffective (Pavoni & Piselli, 2016). Many companies intentionally or negligently pollute, but only receive light administrative sanctions that do not have a deterrent effect. According to Sundar (2003), this weak legal enforcement is a result of the lack of assertiveness of oversight agencies as well as conflicts of interest between authorities and industry actors. Many cases show that oversight is sporadic and inconsistent, often only after there has been a major impact on society. It is not uncommon for officials or stakeholders to have economic or political ties with violating companies, so the legal process tends to stagnate or be engineered so as not to cause major losses to the industry. This condition creates public distrust of the legal system and weakens the protection of people's rights to a clean and healthy environment.

Another problem is the misalignment between applicable regulations, both at the central and regional levels. Differences in the substance and focus of regulations often cause confusion in implementation in the field. As stated by Rosencranz and Divan (2001), overlapping environmental legal systems have the potential to create gray spaces that are utilized by polluters to avoid legal responsibility. Perpetrators can avoid legal proceedings by taking refuge behind regulatory loopholes, or use regulatory confusion as an excuse to delay fulfilling environmental obligations. This reduces the effectiveness of the law as a means of controlling pollution and jeopardizes public health and the surrounding ecosystem.

The lack of society's participation in oversight of environmental violations exacerbates the situation. Many societies do not have the knowledge or access to report violations, so pollution cases are not documented and not taken seriously. Lack of access to information, complicated reporting mechanisms, and fear of intimidation or reprisals from those in power are major barriers to public participation. Many cases of pollution are actually known by local residents, but are not reported because they do not know where to report, or because they have lost trust in the legal system which is considered impartial. Environmental legal should not only be elitist in implementation, but also inclusive in order to create an equitable and comprehensive protective effect (Boyle, 1996). Environmental law should not only function as a regulatory tool, but also a means of community empowerment in preserving the environment and public health collectively.

The improving intensity of ecological disasters and environment-based diseases shows that environmental health issues cannot be sidelined. As air and water quality continue to deteriorate, the incidence of respiratory and infectious diseases increases significantly, especially in children and the elderly (Durac, 2019). Environmental degradation has direct consequences for public health and can no longer be viewed as a separate issue from the national health system. This indicates that environmental pollution is no longer a sectoral issue, but a public health crisis that requires serious attention from various stakeholders. Without strategic and collaborative measures, this crisis will continue to worsen and increase the burden on the health system and the overall quality of life of the community.

Regulations that are not consistently enforced improve the potential for new violations. When laws are not implemented justly and firmly, public trust in the legal system decreases. This lack of assertiveness creates a condition of impunity, where the law seems to lose its force and becomes just a formality without enforcement power. This situation increases the potential for environmental damage and weakens the effectiveness of regulations. In fact, the legal system has a very important preventive and corrective role in creating a healthy and safe environment.

Legal protection of environmental health reflects the extent to which the country respects the right of its citizens to live in decent conditions (Leavitt & Dyer, 2007). The constitution and international legal instruments recognize a clean and healthy environment as a human right. If regulations are only symbolic without strict oversight and evaluation, then the legal system loses its function as a protector of public interests. As stated by Lazarus (1993), an effective environmental legal must be able to integrate scientific, social, and moral dimensions in its implementation. Without integrating these three aspects, environmental law risks becoming partial and reactive, failing to address the complex challenges of environmental degradation and its impact on health.

Based on these problems, the main questions that can be formulated are: How is the effectiveness of legal instruments in regulating and tackling environmental pollution that has an impact on public health? This study aims to analyze the effectiveness of legal instruments in addressing and controlling pollution affecting public health. This study aims to provide a more comprehensive understanding of the relationship between legal regulation and public health protection, as well as a basis for consideration in strengthening environmental legal policies that are more responsive and accountable.

## **RESEARCH METHOD**

The research approach used in this research is a literature study, which aims to collect, analyze, and synthesize various relevant scientific sources related to the relationship between environmental health and legal regulation. Literature study is an effective method to explore theoretical frameworks, secondary data, and previous research results that can provide a thorough understanding of the issue under study. According to Neuman (2006), literature review not only aims to explain trends or patterns from the available data, but also as a basis for developing critical thinking that can produce strong academic arguments. The literature analyzed included legal documents, environmental regulations, scientific journals, public health organization reports, as well as environmental legal literature.

The data collection process was conducted systematically by reviewing literature from various credible sources, both from national and international journals, academic books, and publications from official institutions such as WHO, UNEP, and national environmental legal institutions. The data collected was then analyzed using a descriptive qualitative approach, as described by Creswell (2007), which emphasizes the importance of interpreting the meaning of the text content contextually. This analysis aims to identify regulatory inequality, the effectiveness of legal enforcement, as well as the impact of policies on the protection of public health. With this approach, the research not only describes the existing legal rules, but also examines how the implementation of the legal can have a real influence on the quality of the environment and public health as a whole.

## **RESULT AND DISCUSSION**

The problem of environmental pollution that impacts public health has become a global issue that demands the attention of policy makers, academics, and legal practitioners. Pollution of air, water and land has a broad and damaging impact, not only threatening the preservation of nature, but also worsening the quality of human life, even threatening life safety. Legal instruments play a very important role in addressing the problem. Various laws, regulations, and international conventions have been developed to set standards and limits governing activities that can pollute the environment. Environmental legal aims to create a balance between the needs of development and the protection of ecosystems and public health (Landrigan & Fuller, 2015). With clear regulations and strict law enforcement, it is hoped that environmental pollution can be controlled and people can live in a healthier and safer environment.

While there are various legal instruments that regulate pollution, their implementation is often not maximized. Most of these regulations are ineffective if they are not implemented consistently and there is no strict legal enforcement mechanism (Gunningham & Sinclair, 2009). This can be seen in the many cases of pollution that continue despite regulations prohibiting it, both in developed and developing countries. For example, while countries such as the United States have laws such as the Clean Air Act that have been proven to reduce air pollution, the problem of pollution remains an issue that is difficult to address completely. External factors such as policy incompatibilities, lack of oversight, and resistance from industry often hinder the successful implementation of these laws (Kelishadi, 2012).

The effectiveness of legal instruments in regulating and tackling pollution is highly dependent on the active role of the various parties involved, ranging from the central government, oversighter institutions, to the society itself. To achieve the desired goal, which is to preserve the environment while protecting public health, a stricter oversight system and stricter sanctions for violators are needed. In this case, legal instruments must be able to provide protection that is not only formal but can also be implemented in the field. It is important to continuously evaluate the effectiveness of existing policies and ensure that every aspect of environmental legal can function optimally (McAnulty, 2016). This evaluation involves not only technical or legal aspects, but also needs to look at the impact on society and the environment as a whole. Environmental laws that are applied consistently and fairly will be able to provide maximum protection for public health and environmental sustainability.

Regulating and tackling environmental pollution that impacts public health is one of the biggest challenges in environmental legal. Air, water and soil pollution not only damages the environment, but also threatens human health. Pollution that occurs in various industrial, transportation, and agricultural sectors can contaminate natural resources that are vital to life (Weldeslassie et al., 2018). Around the world, legal instruments such as laws, government regulations, and international conventions aim to regulate and restrict activities that may cause pollution. The effectiveness of these legal instruments depends on the extent to which they are consistently implemented and how enforcement mechanisms are implemented. A number of legal regulations aimed at reducing the impact of pollution on public health, such as the Clean Air Act in the United States, have shown positive results in reducing air pollution levels, while their implementation and effectiveness are often affected by various external factors (Durac, 2019).

Based on existing environmental legal research, legal instruments play an important role in preventing pollution that can threaten public health. The implementation of these legal instruments faces various challenges, especially in developing countries, where oversight and legal enforcement are often not maximized. For example, oversight of industrial emissions that pollute air and water in many places is not strict enough, causing negative impacts on the health of residents around industrial areas. This is due to a lack of resources, administrative issues, and sometimes a mismatch between policy and implementation on the ground. In fact, air pollution can cause various respiratory diseases, heart problems and even cancer, affecting societies quality of life in the long run (Yamineva & Romppanen, 2017).

The implementation of legal instruments to address environmental pollution also includes various regulatory and economic incentive-based approaches (Coglianese & Nash, 2001). One widely used instrument is the granting of permits that set limits on pollutant emissions, as well as the implementation of administrative sanctions for violating companies. While these regulations have been adopted by many countries, their implementation and oversight are often ineffective. This is due not only to a lack of resources and weak oversight, but also to a culture of non-compliance with the legal in some regions, which reduces the potential of legal instruments in tackling pollution. The effectiveness of legal instruments depends largely on the commitment of governments and societies to work together to maintain environmental quality and public health.

For example, in Europe, legal instruments regulating industrial pollution include laws that force companies to reduce their emissions, by providing incentives for companies that successfully meet environmental standards. This approach focuses on achieving better results in pollution reduction through a market-based approach, which allows companies to gain economic benefits while meeting environmental obligations. While these policies exist, some countries face difficulties in their implementation. Inadequate oversight and vagueness in the standards to be followed often leave companies unmotivated to adapt to the changes set out in the regulations. This suggests that even when legal instruments are in place, their success depends largely on the seriousness with which the government and legal enforcement agencies carry them out (Landrigan & Fuller, 2015). A strong commitment from all relevant parties is required to implement and enforce the regulations consistently and effectively.

On the other side, legal instruments that focus more on society education and outreach have also proven effective in raising awareness about environmental pollution. In many countries, regulations that require public education about the impact of pollution on public health can change societies behavior to pay more attention and reduce activities that have the potential to damage the environment (Durac, 2019). Society education is an important key in supporting the effectiveness of legal instruments, as an educated public tends to be more compliant with existing regulations and play a role in keeping the environment clean.

While education being an integral part of tackling pollution, several researches have shown that lack of knowledge and ignorance regarding the health impacts of pollution is still a major problem. This can be seen in the persistence of bad habits in many places, such as open dumping of waste and uncontrolled burning of garbage. Legal instruments that require education are an essential element in supporting government policies, but more effort is needed to ensure that society truly understand the importance of maintaining a clean environment as part of a collective health effort (Stein, 2004).

Legal enforcement is also an important issue that affects the effectiveness of legal instruments in addressing pollution. In many countries, sanctions against environmental violations are often not strict enough, or even not enforced at all (Werksman et al., 2014). This is especially the case in developing countries that have limited human and budgetary resources to police large polluting companies. Lack of transparency in the legal enforcement process can also be detrimental to society, as it allows for violations to go undetected or unduly penalized (Landrigan & Fuller, 2015). Reforms in the legal enforcement system are needed in order to provide a real deterrent effect on the perpetrators of pollution.

Legal instruments regulating pollution are often fragmented and uncoordinated from one region to another. For example, air pollution standards set in one region may differ from those in another, depending on the prevailing policies. This leads to policy ineffectiveness as companies or individuals committing violations can easily move their activities to places with looser regulations. As a result, although there are policies aimed at protecting the environment and public health, their effectiveness is reduced due to non-uniform regulations. Better coordination between the central and local governments in terms of environmental regulations will strengthen the implementation of the legal and make it more consistent across regions.



Legal instruments also often have difficulty addressing pollution caused by the informal sector, such as small industries or unregistered society activities. Activities that are not officially registered are often not monitored and not sanctioned accordingly. This adds to the challenge of pollution abatement, as the informal sector, while small, can have a considerable impact on the environment (Kelishadi, 2012). It is important to develop more inclusive legal instruments that can cover all sectors, both formal and informal, to ensure more comprehensive environmental management.

Besides to oversight and legal enforcement, collaboration with the private sector is also indispensable in reducing environmental pollution. Many companies, while being required to comply with environmental regulations, still look for loopholes to reduce costs in ways that harm the environment. Incentives for companies committed to environmentally friendly practices are essential, such as tax reductions or rewards for their achievements in maintaining environmental quality. Encouraging the private sector to be more responsible can accelerate the achievement of public health protection goals (Harrington, 2013).

The importance of this private sector role is not only limited to compliance with the legal, but also to innovation in green technologies. Companies can be encouraged to invest in technologies that reduce negative environmental impacts, which in turn can reduce potential threats to public health (Durac, 2019). Legal instruments serve not only as tools to regulate, but also as drivers for more sustainable and environmentally friendly innovations (Bennett, 2015). Laws can drive technology development for environmental sustainability, creating synergies between regulatory compliance and greener development goals.

Strict legal enforcement must also be balanced with policies that support long-term sustainability. One approach that can be used is through the establishment of policies that integrate public health considerations with environmental protection policies. Policy development that prioritizes human welfare and the environment simultaneously will help reduce the negative impacts of pollution on public health (Rahmatiar, 2018).

In the face of increasing environmental pollution challenges, stronger and more sustainable policies and legal instruments are needed to protect public health. Changes in society and corporate behavior as well as strengthening legal enforcement must be prioritized in an effort to reduce the adverse impacts of pollution. Only with a holistic and integrated approach can we hope to create a healthy and safe environment for future generations.

Along with strengthening enforcement of existing legal and policies, it is recommended to improve society education on the health impacts of pollution. The development of more inclusive legal instruments and better coordination between central and local governments are essential to ensure the success of environmental policies. Reforms in the oversight system and the implementation of stricter sanctions need to be carried out to provide a greater deterrent effect for perpetrators of pollution.

## CONCLUSION

Based on the foregoing, it can be concluded that legal instruments regulating environmental pollution have significant effectiveness in protecting public health, but such effectiveness is highly dependent on consistent implementation and enforcement. Without strict implementation, existing regulations will not have the maximum impact. While existing legal frameworks such as the Clean Air Act have yielded great benefits in reducing air pollution and minimizing health risks, challenges in implementation on the ground, such as limited resources, corruption, and low public awareness, remain major obstacles in achieving optimal health protection goals. Strong legal enforcement and involving various parties is the key to addressing pollution problems that have an impact on public health.

The implications of these findings suggest that the effectiveness of environmental legal requires policy reform as well as capacity building of institutions in charge of legal enforcement, be it at the local, national, or international level. Weak legal enforcement risks worsening environmental quality and public health. It is important to improve transparency in decision-making processes and strengthen synergies between the government, society and the private sector in pollution prevention efforts. Public education on the importance of environmental awareness should also be an integral part of health protection efforts.

More intensive efforts are needed in terms of legal counseling to the society and industry actors regarding the legal consequences related to environmental pollution. The government must strengthen oversight and legal enforcement mechanisms, and improve training for legal enforcement officers to be more responsive in addressing pollution problems that threaten public health. Collaboration between institutions, including non-governmental organizations and the private sector, is needed to create an ecosystem that supports pollution prevention efforts while maintaining a balance between public health and environmental sustainability.

## REFERENCES

- Bennett, J. (2015). *Protecting the Environment*. Privately.
- Bhat, Mohd. Y., & Andrabi, S. D. A. (2017). Right to Life in Context of Clean Environment: It's Significance under Various Laws. *International Organization of Scientific Research (IOSR) Journal of Humanities and Social Science*, 22(5), 79-85.
- Boyle, A. (1996). The Role of International Human Rights Law in the Protection of the Environment. In A. Boyle & M. Anderson (Eds.), *Human Rights Approaches to Environmental Protection*. Oxford University Press.
- Coglianesi, C., & Nash, J. (2001). *Regulation and Regulatory Processes in Environmental Law*. The Brookings Institution.
- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches* (2nd Ed.). Sage Publications.
- Dogaru, L. (2014). Preserving the Right to a Healthy Environment: European Jurisprudence. *Procedia - Social and Behavioral Sciences*, 141, 1346-1352.
- Durac, G. (2019). Considerations on the Legal Protection of the Atmosphere. *Present Environment and Sustainable Development*, 13(1), 213-223.
- Frumkin, H. (2016). *Environmental Health: From Global to Local*. John Wiley & Sons.
- Grappasonni, I. (2018). *Clean and Healthy - Built Environments and Health: Quality of Life in an Urban Context*. Springer International Publishing.
- Gunningham, N., & Sinclair, D. (2009). *Environmental Regulation: The Role of Law*. Oxford University Press.
- Harrington, D. R. (2013). Effectiveness of State Pollution Prevention Programs and Policies. *Contemporary Economic Policy*, 31(2), 255-278.
- Kelishadi, R. (2012). Environmental Pollution: Health Effects and Operational Implications for Pollutants Removal. *Journal of Environmental and Public Health*, 2012(9), 1-2.
- Koehler, K., Latshaw, M. W., Matte, T., Kass, D., Frumkin, H., Fox, M., Hobbs, B. F., Wills-Karp, M., & Burke, T. A. (2018). Building Healthy Community Environments: A Public Health Approach. *Public Health Reports*, 133(1), 35-43.
- Landrigan, P. J., & Fuller, R. (2015). Global health and Environmental Pollution. *International Journal of Public Health*, 123(3), 201-209.
- Lazarus, R. J. (1993). Pursuing "Environmental Justice": The Distributional Effects of Environmental Protection. *Northwestern University Law Review*, 87(3), 787-857.
- Leavitt, W. M., & Dyer, L. (2007). Legal Aspects of Environmental Protection. *Environmental Law Review*, 11(4), 2426-2435.
- McAnulty, J. (2016). Managing the Environment for Health Protection: Research, Policy and Practice. *Public Health Research & Practice*, 26(2), 1-2.
- Neuman, W. L. (2006). *Social Research Methods: Qualitative and Quantitative Approaches* (6th Ed.). Pearson Education.
- Pavoni, R., & Piselli, D. (2016). The Sustainable Development Goals and International Environmental Law: Normative Value and Challenges for Implementation. *Veredas do Direito*, 13(26), 13-60.
- Rahmatiar, Y. (2018). The Role of Environmental Insurance as the Prevention Effort of Environmental Pollution. *Journal of Arts and Humanities*, 7(5), 46-53.
- Rosencranz, A., & Divan, S. (2001). *Environmental Law and Policy in India*. Oxford University Press.
- Stein, B. (2004). *The Economics of Pollution Control*. Cambridge University Press.
- Sundar, N. (2003). Legal Discourses and Environmental Rights in India. *Contributions to Indian Sociology*, 37(2), 345-368.
- Weldeslassie, T., Naz, H., Singh, B., Oves, M. (2018). Chemical Contaminants for Soil, Air and Aquatic Ecosystem. In *Modern Age Environmental Problems and their Remediation*. Springer.
- Werksman, J., Cameron, J., & Roderick, P. (Eds.). (2014). *Improving Compliance with International Environmental Law*. Routledge.
- Yamineva, Y., & Romppanen, S. (2017). Is Law Failing to Address Air Pollution? Reflections on International and EU Developments. *Review of European, Comparative and International Environmental Law*, 26(3), 189-200.