



Government policy in regulating the environment for development of sustainable environment in Indonesia

Yahman Yahman¹ · Azis Setyagama¹

Received: 10 September 2020 / Accepted: 21 July 2022
© The Author(s), under exclusive licence to Springer Nature B.V. 2022

Abstract

Environmental development in Indonesia refers to long-term sustainable challenges in which the environment is continually preserved for the benefit of current and future generations. However, the economic growth, which is supposed to benefit citizens, has an influence on environmental degradation because it affects changes in natural and environmental situations. Changes in natural conditions and the environment must be regulated by law so that they may be used for the benefit of citizens without harming the environment and can be enjoyed and handed on to future generations. This article used normative legal research on Environmental Protection and Management Law No. 32/2009. It relates to legal guarantees from the government for environmental protection, especially the prevention of environmental damage due to massive exploitation of natural resources in Indonesia. The research method used a descriptive approach by analyzing and explaining what is inside the books, journals, or the opinions of environmental experts. The results showed that excessive use of natural resources to pursue development for the welfare of society may damage the environment and the efforts made by the government in handling the environmental damage with sustainable development policies are the best solution in managing the environment in Indonesia.

Keywords Government policy · Regulation · Environment · Indonesia

1 Introduction

Development is critical to the existence of a nation and state, especially for the well-being of its population. Development is the process of managing natural resources and employing human resources via the use of technology. In order to carry out the development, it is necessary to have a very mature and integrated planning process that takes into account all opinions and perceptions that impact one another. Development must include all factors, including the potential of the local region, the customs and habits of life of the community

✉ Yahman Yahman
yahmanaldi12@gmail.com
Azis Setyagama
setyagama.azis@gmail.com

¹ Department of Law, Faculty of Law, Bhayangkara University, Surabaya, Indonesia

surrounding development operations, natural resources, human resources, and issues of community trust. Furthermore, development must consider the physical (land, water, air), biotic (flora and fauna), and cultural aspects of the current ecosystem (culture and human interaction). If not matched with a sustainable planned development approach, the quality of the environment will continue to degrade. For example, the flood disasters that frequently strike big cities are one of the consequences of uncontrolled development that ignores the principle of sustainable development. The concept of long-lasting or sustainable development is also expected to facilitate environmental problems that occur.

Sustainable development is a development paradigm that is directly related to the balance of nature or the environment. According to Keraf (2002), the sustainable development paradigm has been acknowledged as a political objective for all countries throughout the world. Meanwhile, the interaction between economics and environment, according to Panayotou (1994) is critical in the topic of sustainable development. There are no nations or states that have not implemented development for their own countries because development is a transformation process that leads to a better outcome. The goals were to make things better than they were before. Important factors that support each phase should be considered as part of the development process. The issue that occurs is when some parts of development are disadvantaged. The dilemma is whether development truly leads to better change, or if the better change that occurs from development might also pose a danger that is dangerous. In this regard, the authors highlight important aspects that influence development's long-term sustainability, particularly environmental factors. It is well recognized that development activities, particularly physical activity associated with the use of natural resources might pose a threat to ecosystem change and these changes will have positive or negative effects. As a result, the development activity that should be undertaken should focus on the social, economic, and environmental considerations.

Environmentally development is a conscious and planned effort in using and managing the resources wisely due to improve the quality of human life. The implementation of environmental development and the controlled use of natural resources are the main objectives of the environmental management. The sustainable development is very close to environmental programs and management policies. In its essence, development is an effort to improve the standard of living of the people. Thus, every activity that provide opportunities for the community to improve their lives is can be called as development activity (Saptari, 2009). For instance, the factory construction activities carried out by the private sector. This development will provide opportunities for the community to improve their standard of living by filling the workforce at the factory.

Environmental problems are treated as sectoral problems that appear to have a world of their own. As a sector, it is often opposed to development, so people are faced with a choice between "environment" and "development". Indeed, the environment is a problem that is interrelated with development. The interdependent nature of the environment cannot make the environment a separate sector, so it is deemed necessary to look for a range of issues that link the environment and development. There is a cross-sectoral approach and dissolves environmental views in development.

Another consideration driving the integration of environment and development is concern over the ability of the environment to sustain sustainable development. If development is allowed to continue by destroying the environment, then the sustainability of development itself is threatened, so the possibility of improving the welfare of future generations is also disrupted. Thus, the concept of sustainable development or better known as sustainable development is a development process (land, city, business, community, etc.) that is based on the principle of "meeting current needs without compromising the needs of

future generations” (according to the UN Brundtland Report, 1987). One factor that must be faced to achieve sustainable development is how to repair environmental destruction without sacrificing the needs of economic development and social justice. “Environment” is where we all live, while “development” is what we all do in an effort to improve and enhance human destiny.¹

According to the Ministry of Environment, sustainable development can be measured based on 3 (three) criteria, namely: (1) no waste of natural resource use, (2) no pollution and other environmental impacts, and (3) activities must be able to increase useable resources or replaceable resources (Hapsoro & Bangun, 2020). Sustainable development with an environmental perspective requires solid integration and coordination between the use of natural, human, and artificial resources over a period of time, spatial dimensions, and coordinated to be effective, effective, and efficient. (Suhono, 2004). In Indonesia, the definition of the concept of sustainable development has evolved. It is contained in Law No 32/2009 concerning Environmental Protection and Management which is the renewal of Law No 23/1997 concerning Environmental Protecting and Management, saying that:

Sustainable development is a conscious and planned effort that integrates environmental, social and economic aspects into a development strategy to ensure the integrity of the environment and the safety, capability, welfare and quality of life of present and future generations.

Sustainable development requires attention in order to develop a place without damaging the current ecology and the residents’ desire for a better living is not neglected. For some individuals, sustainable development is tied to economic growth and to establish a long-term economy without depleting natural resources is needed, as the earth’s natural resources are finite. This article attempts to learn more about environmental issues and efforts to avoid and mitigate degradation in order to create a sustainable environment that can be passed down to future generations.

1.1 Methodology

The research method used to write this article was normative legal research, which focuses on the norms and rules that govern the environment, particularly sustainable environmental development, in which the environment is continuously well maintained so that it can be passed down to future generations. The author also considers the opinion of environmental specialists through books, journals, essays, and other scientific works published in both electronic and print media to further expand the knowledge and explanation of this law. Apart from being approached through norms and regulations specified in Law No. 32/2009, a sociological approach was also carried out, which is an approach carried out by looking at the social conditions of the community associated with environmental protection and management. The purpose of descriptive analysis is to look into the circumstances, conditions, or other items specified, with the results being delivered in the form of research reports (Arikunto, 2010). Researchers do not alter, add to, or modify the item or area of study in research. Researchers just observe what occurs to the item or location

¹ The United Nations has provided political support since 1992 by developing the principles of Sustainable Development through the UN Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, known as the Rio Summit/the Earth Summit.

under investigation in this research activity, then summarize what happens in a clear manner in the form of a research report. Likewise, stated by Moleong (2000) that the implementation of descriptive methods is not limited to the collection and compilation of data, but includes analysis and interpretation of the meaning of the data, while the design used in this paper is the design of library studies, where the author traces the literature and then does a review.

2 Results and discussion

2.1 Environmental problems and socio-economic conditions of the Indonesian community

The environmental challenges in Indonesia are extremely complicated when compared to those in other nations; the country's vast territory, which includes thousands of tiny and big islands, makes it difficult for the government to prevent environmental degradation. Furthermore, a big population with limited human resources makes nature as a cornerstone which leads to an indirect impact on environmental change (Ilham, 2021). Rapid economic growth and expansion in the developing countries are expected to cause substantial environmental harm unless actions are made to avoid the negative effects (Todaro & Smith, 2003). Economic development that is overly concerned with pursuing economic growth is prone to disregard environmental sustainability (Ilham, 2018; Nikensari et al., 2019). Ignoring environmental aspects in the pursuit of a fast development rate declines the environmental quality. Low environmental quality, especially air pollution, leads to decreased health, happiness, and subjective health and well-being. As a result, environmental degradation issues become a threat to economic development (Ogboru & Anga, 2015). Humans, as the world's environmental rulers, have a critical role in deciding the sustainability of the environment. Humans, as rational beings created by God, have the ability to transform the world from primitive life patterns to the contemporary life forms nowadays. Unfortunately, what humans do is frequently outweighed by considerations about the next generation's future existence.

Many of humanity's advancements have a detrimental influence on environmental sustainability. The environment impacts and is impacted by development implementation. Development, in general, attempts to enhance people's lives by better meeting their fundamental requirements. In order to increase people's quality of life as a goal of development, the environment's potential to sustain greater levels of living should be preserved. In other words, if the environment is damaged, then there will be more challenges in the future.

Environmental issues develop as a result of population dynamics, ineffective resource management, uncontrolled use of modern science and technology, negative consequences of economic advancement, and geographical disputes (Weber & Sciubba, 2019). When faced with the fact of expanding population and the development of technology that can be utilized to maintain life, the pattern of human life undergoes a huge transformation. Some of these lifestyle patterns are incompatible with the natural environment, resulting in an environmental disaster. Environmental problems are natural problems that occur as part of a natural process. This natural process occurs without causing significant consequences for the environmental order and can recover later naturally. However, nowadays, the environmental problems can no longer be regarded as purely natural problems, because humans provide a very significant variable cause for environmental events (Nwankwoala, 2015).

There is no denying that environmental problems are born and develop due to human factor is much bigger and complicated compared to natural factors. One of the main causes of environmental disasters in Indonesia is problems with environmental management. All environmental problems hinge on development that neglects environmental balance resulting in damage and pollution. Therefore, actions that pollute the environment are the same as killing life itself. Nwankwoala (2015) claimed that humans play a critical role in making the environment more hospitable and habitable. For this reason, the community plays an important role in the protection and management of the environment.

Moreover, Indonesia which is included as a fourth largest population of a developing country in the world needs a variety of living amenities – such as land. Thus, it modifies the purpose of the land and its environmental sustainability. Similarly, the negative effects of development activities carried out by the government, private companies, and citizens who do not care about the environment will reduce the quality of the environment and threaten human survival, for example, the current development activities that affect ecosystem balance including:

- (a) Damage to various life support systems vital for humans, both bio-physical and socio-cultural.
- (b) Ecosystem instability due to degradation from environmental pollution.
- (c) Various institutional development gaps in the field of natural resource management and the environment.
- (d) Decreased carrying capacity and carrying capacity of the environment.
- (e) Depletion of natural resources and the environment.
- (f) Problems with the utilization and management of natural resources (forests, land, water resources, biodiversity, coastal and marine resources).
- (g) Natural disasters, and.
- (h) Environmental pollution.

2.2 Sustainable environmental management policy in Indonesia

According to the 1945 Constitution of the Republic of Indonesia, one of the goals of establishing the state and state government was to enhance public welfare. The state is given exclusive powers to regulate the environment and natural resources in order to attain the general welfare, which is known as the right to control the state. The right to govern the state and to benefit the people is stated in Article 33 paragraph 3 of the 1945 Constitution, “*The earth, water, and natural resources contained within are controlled by the state and utilized as much as possible for the wellbeing of the people*”. The power to control the state was expressed by Muhammad Hatta as the state’s right to create rules in order to support economic life (Abdulgani, 2000). The welfare of a country’s citizens is directly linked to environmental control and management. People’s well-being will be attained through environmental control and management since the welfare of the people is the goal of the state or living in a state for a country that claims to be a welfare state.

The worldwide community has been paying close attention to environmental degradation problems for more than a decade. Many groups, including politicians, intellectuals, community leaders, and development critics, have focused on issues such as population explosion, increasing numbers of poor people, slowing urbanization, abandonment of rural lands, and industrial development that ignores the resilience of natural resources. The international meeting was held as a response to development strategies that ignore the demands

of ecological balance claimed that the sustainable development paradigm has failed since it is not being implemented in accordance with agreed-upon guidelines. It can be seen from the environmental damage (the impact of greenhouse gases, the heat of the earth, and climate change) that occur throughout the world, including in Indonesia.

However, the attempts to avoid the pollution and/or environmental damage will be successful if there is community and government devotion to the law, ensuring that the rule of law is effective. Because the population's primary role in sustainable development is to process and manage natural resource potential effectively and efficiently while maintaining environmental sustainability, a population of adequate quality is required. Therefore, a balance and harmony between the population and the natural carrying capacity and environmental capacity can be achieved. As a result, government policy in sustainable environmental management is inextricably linked to the role of all parties, country's economic actors whose business activities come into direct contact with the environment, and all citizens bear responsibility for environmental sustainability to be passed on to future generations.

Environmental protection is a necessity that can no longer be postponed, and it is the responsibility of everyone. No matter how insignificant our contribution is, it is critical to the achievement of a habitable planet for future generations of children and grandchildren. Following the government's attempts to provide a just and prosperous life for its citizens without inflicting environmental harm, a sustainable development program should be developed.

A comprehensive milestone in the regulation of Environmental Law in Indonesia or so-called environmental-oriented law is the birth of Law Number 4/1982 concerning Basic Provisions for Environmental Management, abbreviated as Law Living Environment, which was then replaced by Law Number 23/1997 concerning Environmental Management and now replaced by Law Number 32/2009 concerning Environmental Protection and Management. The fundamental difference between Law No. 23/1997 and Law No. 32/2009 is the strengthening contained in Law No. 32/2009 concerning the principles of environmental protection and management based on good governance because in every process of formulating and implementing instruments for preventing pollution and/or environmental damage as well as prevention and law enforcement requires the integration aspect of transparency, participation, accountability, and justice.

The environmental management policy has been stated in the Law of the Republic of Indonesia No. 32/2009 which instructed that the development carried out must pay attention to the environment or referred to as sustainable development as stated in Article 1 number 3 of Law No. 32/2009 which states that "sustainable development is a conscious and planned effort, which integrates environmental, social and environmental aspects." Moreover, economics into development strategies are needed to ensure the integrity of the environment and the safety, capability, welfare and quality of life of present and future generations.

Indonesia as a developing country, which is currently carrying out development in all fields, must also be oriented towards environmental development. Understanding development here is a conscious effort of the Indonesian people to improve their standard of living by utilizing all of the resources they have. Law No. 32/2009 outlined the concept of environmental protection and management as an integrated systematic effort to preserve environmental functions that include planning, utilization, control, election, supervision, and law enforcement.

Compared with the 1982 Environmental Law and the 1997 Environmental Law, the Environmental Protection and Management Act contains more chapters and articles. The

Environmental Protection and Management Act consists of chapter XVII and 127 Article. The naming of the chapters is as follows: Chap. 1 on General Provisions, Chapter II on Principles, Objectives and Scope, Chapter III on Planning, Chapter IV on Utilization, Chapter V on Control, Chapter VI on Maintenance, Chapter VII on Management of Hazardous Materials and Toxic, Chapter VIII on Information Systems, Chapter IX on Duties and Powers of the Government and local governments, Chapter X on Rights, Obligations and Prohibitions, Chapter XI on Community Roles, Chapter XII on Supervision and Administrative Sanctions, Chapter XIII on Settlement of Environmental Disputes, Chapter XIV concerning Investigation and Proof, Chapter XV concerning Criminal Provisions, Chapter XVI concerning Transitional Provisions and finally Chapter XVII concerning Closing Provisions. The Environmental Protection and Management Act requires implementing regulations in the form of government regulations in the following fields:

1. Environmental inventory (Article 11);
2. Application of ecoregions (Article 11);
3. Environmental Protection and Management Plan (Article 11);
4. Determination of the carrying capacity and carrying capacity (Article 12) paragraph (4);
5. Strategic Environmental Assessment (Article 18) paragraph (2);
6. Environmental Quality Standards (Article 20) paragraph (4);
7. Standard Criteria for Damage (Article 21) paragraph (5);
8. Analysis of environmental impacts (Article 33);
9. Environmental Permit (Article 41);
10. Environmental economic instruments (Article 43) paragraph (4);
11. Environmental risk analysis (Article 47) paragraph (3);
12. Procedures for overcoming pollution and/or environmental damage (Article 53) paragraph (3);
13. Control of pollution and/or environmental damage (Article 56);
14. Procedures for restoring environmental functions (Article 54) paragraph (3);
15. Guarantee fund (Article 55) paragraph (4);
16. Conservation and reserve of natural resources and preservation of atmospheric functions (Article 57) paragraph (5);
17. Management of hazardous and toxic materials (Article 58) paragraph (2);
18. Management of Hazardous and Toxic Waste (Article 59) paragraph (7);
19. The procedures and requirements for dumping (Article 61) paragraph (3);
20. Procedures for supervision (Article 75);
21. Administrative sanctions (Article 83);
22. Settlement of environmental disputes (Article 86) paragraph (3).

For the purpose of keeping the environment maintained the government has issued many laws and regulations relating to the environment in the hope that we must protect the environment together for the welfare and prosperity of all citizens in accordance with the mandate of the Opening of the 1945 Constitution.²

² The mandate contained in the Preamble of the 1945 Constitution, the state is obliged to prosper the people through various development efforts, one of the elements of development is that it requires a lot of land for which its functions are legitimate, and this affects the environment, so the concept of sustainable development is sought where development is sought keep going but still preserving the environment.

2.3 Government's efforts to overcome environmental damage in Indonesia

There are four principles for realizing sustainable development, such as meeting basic needs (fulfillment of human needs), environmental preservation (maintenance of ecological integrity), social justice (social equity) for future generations, and the opportunity for self-determination which includes elements of participatory democracy (Hadi, 1998). The pattern of human life has changed as a result of increased population and rapid technological advancement. If human needs were once limited to primary and secondary requirements, they have now expanded to include consumptive and limitless tertiary wants. These requirements are not only met, but they also change with the times.

Humans have begun to disregard nature, and there is an abundance of proof of environmental devastation that has occurred in this world. Apart from natural forces, the degradation is attributable to the actions of humans who are concerned about the problems that may arise as a result of the small things they do that disrupt the natural balance. Furthermore, individuals are becoming increasingly unconcerned with the environment around them, and they are not considering the long-term consequences. Unwise use of natural resources can degrade the quality of the resource, resulting in pollution and destruction. As a result, nature's and living creatures' balances are disrupted (Soemarwoto, 2004).

Environmental damage caused by polluted environments comes from several sources and enters air, water and soil in various ways. Air pollutants mainly come from motorized vehicles, industries, and waste incineration. In addition, many factories have been built at this time, even the factories were built out of place, such as on the edge of a river. And finally, the waste generated by the factory will intentionally flow into the river, causing the river water which was originally clean and used for the daily needs of citizens to become polluted and river water cannot be used for daily needs. The plant also causes air pollution, which comes from the steam released by the factory. Solid materials which are disposed of by factories into rivers and cannot be decomposed can also inhibit the smooth flow of the river, while materials that can be decomposed will make the river contain dangerous chemicals. For those who are economically weak business actors whose business is estimated to have and will damage the material/physical environment, the business actor is given an understanding of the problems of environmental damage and pollution, so that the environment is protected from pollution and damage (Rahmadi, 2014).

Environmental damage that occurs mainly caused by humans. Now there is a lot of illegal logging. In fact, forests are very useful for human survival. If the trees in the forest decrease, it can cause natural disasters such as landslides, floods, disruption of natural ecosystems, and so forth. Humans also do not care about small things, such as littering, because it can also damage the environment. From this issue, the concept of "sustainable development" was born. This concept is believed to answer various problems and challenges of environmental development and development. As well as how to continue development as a means used by humanity to achieve better welfare.

Below are the ways to deal with the environmental impacts that have been carried out by the government and are still in planning:

1. Apply the 4R Principle

The principle is used in dealing with environmental damage regarding the overflow of flood water, namely Reduce, Reuse, Recycle, and Replant (4R). Reduce is to reduce

the use of goods that are not useful or not useful. Reuse is to use goods that can still be used or can still be used. Recycle is to recycle goods or trash into useful items. While replant is to hoard organic waste to be composted or fertilizer.

2. Reforestation

The existence of forests in the world becomes the lungs of the world. If there is forest that is destroyed, then several other countries will also get the effect. Of course, the one who will receive the first result is a country that has damaged its own environment. For that, never damage the existing forest. If you want to cut down trees, then you must have a selective cutting attitude and plant seeds for new trees.

3. Bioremediation

Waste in the community does not only occur in industry, but there is also waste from households, but which has a greater effect is the waste from industry. For this reason, an industry must know what bioremediation is. Especially for industries that emit a lot of hazardous waste in the form of toxic substances. The impact is not just looking for environmental support but can interfere with public health in the surrounding area.

Bioremediation is the use of microbes or plants from contamination. So the waste to be disposed of must be cleaned first of contamination. So with this bioremediation, the waste that will be disposed of does not cause adverse impacts on the environment.

4. Land Rehabilitation

The rehabilitation is also an effort to restore the land ecologically. The rehabilitation is also an effort to restore the physical environment to be able to function again. The responsibility that makes this rehabilitation is the entrepreneurs who have been mining the land. If this is not done, the soil will become barren and die.

5. Beach Reclamation

Beach reclamation is a beach restoration activity to save land that is critical and dead to become more productive land. There is a critical area due to man-made sand mining. Now with the reclamation of the beach is became a way to cope with environmental damage caused by human activity.

6. Producing Natural Oils

Ada There is a process called thermo-depolymerization, a process similar to how nature produces oil. For example, carbon-based waste if heated and under proper pressure, is able to produce oil. This process naturally takes millions of years. From past experiments, turkey manure can produce about 600 pounds of petroleum.

7. Distillation of Sea Water into Freshwater

PBB The UN noted, clean water supply will be very limited for billions of people by the middle of this century. There is a technology called Desalination, which removes

salts and minerals from seawater so it is fit for drinking. This is a solution that can be done to prevent a water crisis. The problem is, this technology is still too expensive and requires considerable energy.

8. Hydrogen Fuel.

Hydrogen fuel is considered as a pollution-free alternative fuel. Energy is produced from a combination of hydrogen and oxygen. The problem is how the hydrogen is produced. Molecules such as water and alcohol must first be processed to extract hydrogen into a fuel cell. This process also requires huge energy. But at least scientists have tried to make laptops and other devices with fuel cell power.

9. Solar Power

Solar energy that reaches the earth is formed from photons, can be converted into electricity or heat. Several companies have successfully used this application. They use solar cells and solar thermal as a medium for collecting energy.

10. Sea Heat Conversion

The largest solar collecting media on earth is sea water. The United States (US) Energy Department said that the sea is able to absorb solar heat equivalent to the energy produced by 250 billion barrels of oil/day. There is a technology called OTEC that is able to convert marine thermal energy into electricity. Differences in temperature between sea levels are able to run turbines and drive generators. The problem is, this technology is still less efficient.

11. Ocean Wave Energy

The sea covers 70% of the earth's surface. The waves store large amounts of energy which can move turbines to produce electricity. The problem is rather difficult to predict when ocean waves are large enough to produce enough energy, the solution is to save some energy when the waves are large enough. The East River of New York City is currently in a trial project with six water wave-powered turbines. While the Portuguese actually had already put into practice this technology and successfully illuminated more than 1500 homes.

12. Planting Plants on the Roof of the House

Plants that plant on the roof of this house are able to absorb heat and reduce carbon dioxide. And this is important in reducing global warming that is sweeping the world today.

13. Electronic Books

How many tons of paper and how many trees must be cut down for the whole world if we all have to buy newspapers, magazines, novels, textbooks, notebooks, writing paper, to toilet paper. E-books or e-mail better known as e-books and e-mails make a very sig-

nificant contribution to survival. With this technology, paper production can be reduced, so that our material does not need to cut down too many trees.

3 Conclusions

The state has a commitment to prosper its people, according to the Indonesian Constitution, which is found in the Preamble to the 1945 Constitution. The Indonesian government pursued development in all spheres in order to fulfill the constitution's responsibility of ensuring societal welfare. When carrying out the construction development, it is ensured that vast and necessary land is utilized in compliance with the master development plan. In such circumstances, environmental degradation caused by industrialization, as well as the increase in Indonesia's population, must be sacrificed. To address the issue of environmental degradation, the Indonesian government proposed a concept of sustainable development, which means that implementation will not sacrifice damage to the ecosystem, allowing the environment to remain healthy and sustainable for future generations. Furthermore, the Indonesian government is working to mitigate environmental damage in a variety of methods, including greening, coastline reclamation, and land restoration. The Indonesian government's efforts to address environmental damage as the government's obligation for the recovery and protection of the environment for future generations.

References

- Abdulgani, R. (2000). *Actualization of Bung Hatta's thoughts on economic democracy in Sri Edi Swasono, Bung Hatta Mr. Kedaulatan Rakyat*. Hatta Foundation.
- Arikunto, S. (2010). *Research procedure*. PT. Reneka Cipta.
- Hadi, S. P. (1998). *Environmental development reform*. PPLH Diponegoro University.
- Hapsoro, N. A., & Bangun, K. (2020). Perkembangan Pembangunan Berkelanjutan dilihat dari Aspek Ekonomi di Indonesia. *LAJAR: Jurnal Arsitektur*, 3(2), 88–96
- Ilham, M. I. (2018). Economic development and environmental degradation in ASEAN. *Signifikan: Jurnal Ilmu Ekonomi*, 7(1), 103–112. <https://doi.org/10.15408/sjie.v7i1.6024>
- Ilham, M. I. (2021). Economic development and environmental degradation in Indonesia: Panel data analysis. *Jurnal Ekonomi & Studi Pembangunan*, 22(2), 185–200. <https://doi.org/10.18196/jesp.v22i2.7629>
- Kerf, U. S. (2002). *Environmental ethics*. Kompas.
- Moleong, L. J. (2000). *Qualitative research methods*. Youth Rosdakarya.
- Nikensari, S. I., Destilawati, S., & Nurjanah, S. (2019). Studi Environmental Kuznets Curve di Asia: Sebelum dan Setelah Millennium Development Goals. *Jurnal Ekonomi Dan Pembangunan*, 27(2), 11–25. <https://doi.org/10.14203/JEP.27.2.2019.11-25>
- Nwankwoala, H. N. L. (2015). Causes of climate and environmental changes: The need for environmental-friendly education policy in Nigeria. *Journal of Education and Practice*, 6(30), 224–234
- Ogboru, I., & Anga, R. A. (2015). Environmental degradation and sustainable economic development In Nigeria: A theoretical approach. *Research Journal of Economics*, 3(6), 551–564
- Panayotou, T. (1994). *Economy and ecology in sustainable development*. PT Gramedia Pustaka Utama.
- Rahmadi, T. (2014). *Environmental law in Indonesia*. PT Rajagrafika.
- Saptari, A. (2009). *The principles of environmentally sustainable development, in the Principal Material Book on Development and Environmental Management*. Open University.
- Soemarwoto, O. (2004). *Environmental ecology and development*. PT Jambatan.
- Suhono, A. (2004). *Sustainable development (sustainable development) in changes to the global environment*. Bogor Agricultural University.
- Todaro, M. P., & Smith, S. C. (2003). *Economic development*. Addison Wesley Longman.
- Weber, H., & Sciubba, J. D. (2019). The effect of population growth on the environment: Evidence from European regions. *European Journal of Population*, 35(2), 379–402. <https://doi.org/10.1007/s10680-018-9486-0>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.