


Forest Fire and Environmental Damage: The Indonesian Legal Policy and Law Enforcement



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ABSTRACT. Law enforcement regarding the environment is in fact a responsibility that should be fulfilled by the state. In this case, the state is the main actor in prevention, as well as a protector from any efforts to destroy nature and the environment. It can be understood that to maintain the crucial elements in the existence of a state, as agreed in the Montevideo Convention, among others, permanent residents, definite territory, government, the ability to enter into relations with the state. other. So, with this it can be understood that environmental damage due to forest fires, is a form of threat also in the area element, because by burning ecosystems, it will result in an imbalance of life in an area, it can also be interpreted if the impacts arising from forest fires spread to enter the area. on the territory of neighboring countries, it will lead to unfavorable relations with other countries.

KEYWORDS. Law Enforcement, Environmental Law, Air Pollution

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Introduction

Legal protection that must be fulfilled by every country for its citizens is to guarantee every citizen to fulfill the rights of a good environment. In Indonesia, it has been specifically regulated in the 1945 Constitution of the Republic of Indonesia, as stated in Article 28H Paragraph 1 of the 1945 Constitution of the Republic of Indonesia which states, “*Everyone has the right to live in physical and spiritual prosperity, to have a home, and have a good and healthy living environment and have the right to health services*”. Therefore, a good and healthy environment is a human right and a constitutional right for every citizen.¹

Indonesia as a country that upholds human rights has also ratified the General Declaration of Human Rights (UDHR), Law Number 39 of 1998 concerning Human Rights, which in the law also includes the right to the environment, as stated in Article 9 paragraph (3) affirms: “*everyone has the*

¹ Rahyunir Rauf, Zainal Zainal, Rendi Prayuda, Khairul Rahman, and Ahmad Fitra Yuza. “Civil Society’s Participatory Models: a Policy of Preventing Land and Forest Fire in Indonesia.” *International Journal of Innovation, Creativity and Change* 14, No. 3 (2020): 1030-1046; Prasasti Dyah Nugraheni, and Andrianantenaina Fanirintsoa Aime. “Environmental Law Enforcement in Indonesia Through Civil Law: Between Justice and Legal Certainty”. *The Indonesian Journal of International Clinical Legal Education* 4, No. 1 (2022). <https://doi.org/10.15294/ijicle.v4i1.55763>.

right to a good and healthy environment.” This ratification effort then stated that Indonesia is one of the countries that recognizes and respects human rights that are universally applicable and binding, meaning that it does not only apply to domestic citizens but is also obliged to protect the environmental rights of other citizens. Thus, Indonesia as a state, the government and all stakeholders are obliged to protect and manage the environment in the implementation of sustainable development so that the Indonesian environment can remain a source and support for life for the Indonesian people and other living creatures.²

However, in its development, environmental pollution which results in environmental damage continues to occur along with the times and various motifs and types. Environmental damage is getting worse day by day. These conditions have directly threatened human life. The level of natural damage also increases the risk of natural disasters. The causes of natural damage can be caused by two factors, namely due to natural events and due to human activities. One of them is the destruction of forests due to human activities in order to be able to exploit natural resources by burning forests.

Literature Review

The living environment is the unity of space with all objects, forces, conditions and living things, including humans and their behavior that affect nature itself, the survival of life and the welfare of humans and other living creatures.³ The need for the preservation of environmental functions which is a series of efforts to maintain the continuity of the carrying capacity and capacity of the environment so that there is no imbalance that can cause

² Ahmad Muzaki, “Pengendalian Kebakaran Hutan Melalui Penguatan Peran Polisi Kehutanan Untuk Mewujudkan Sustainable Development Goals,” *Jurnal Hukum Lingkungan, Tata Ruang, dan Agraria* 1, No. 1 (2021). For further discussion concerning Human Rights Aspect in the Environmental sector, please see Berlian Putri Haryu Lestari, “Environment and Law, What Is the Indonesian Context? A Review Book ‘Hukum Lingkungan Sebuah Pengantar untuk Konteks Indonesia’, Prof. Dr. H. M. Hadin Muhjad, SH., M.Hum., PT Genta Publishing, Yogyakarta, 2015, 232 pages, ISBN: 978-602-1500-25-5”. *Indonesian Journal of Advocacy and Legal Services* 3, No. 1 (2021): 129-136. <https://doi.org/10.15294/ijals.v3i1.34799>; Aris Rudiharto, “Forests for Justice: What Is the Sharing of Forest Products Between the Government and the Community?”. *Unnes Law Journal: Jurnal Hukum Universitas Negeri Semarang* 5, No. 1 (2019). <https://doi.org/10.15294/ulj.v6i1.8228>; Adiguna Bagas Waskito Aji, Puji Wiyatno, Ridwan Arifin, and Ubaidillah Kamal. “Social Justice on Environmental Law Enforcement in Indonesia: The Contemporary and Controversial Cases”. *The Indonesian Journal of International Clinical Legal Education* 2, No. 1 (2020): 57-72. <https://doi.org/10.15294/ijicle.v2i1.37324>.

³ M. Hadin Muhjad, “Hukum Lingkungan Sebuah Pengantar untuk Konteks Indonesia” 3, No. 2 (2016): 33–75.

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pollution either intentionally by people who have personal interests or unintentionally due to reduced natural carrying capacity, as well as pollution caused by environmental problems. occurs both in water and especially in air pollution. Environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so that they exceed the environmental quality that has been determined.

1. The Environmental Pollution

Environmental pollution that occurs is an event of the entry or inclusion of living things, substances, energy and/or other components into the living environment by human activities so that they exceed the established environmental quality standards. The standard criteria for environmental damage is a measure of the limit of changes in the physical, chemical, and/or biological eel of the environment that can be tolerated by the environment in order to maintain its function.⁴ Meanwhile, what is meant by pollutant is environmental pollutant, which can be in the form of chemicals, dust, heat, sound, radiation and microorganisms.⁵ The current level of pollution is becoming increasingly worrying. Such environmental conditions are no longer maintained, and this threatens the existence of creatures on the earth's surface.

The following are types of pollution based on environmental objects where pollutants are spread which can be divided into three types of pollution, namely:⁶

⁴ Suranto Wahyuni, Herpita, "Dampak Deforestasi Hutan Skala Besar Terhadap Pemanasan Global di Indonesia," *Jurnal Ilmiah Ilmu Pemerintahan* 6, No. 1 (2021). Please also see Ogochukwu Harrison Amede, and Kelly Bryan Ovie Ejumudo. "The Problematic of Disaster Management Law and Policy in Nigeria: A Study of Bayelsa State". *Indonesian Journal of Advocacy and Legal Services* 3, No. 1 (2021): 35-50. <https://doi.org/10.15294/ijals.v3i1.45571>; Maruf Maruf. "Indonesia Response and Recent Development of Law and Policy in Addressing Marine Plastic Litter". *JILS (Journal of Indonesian Legal Studies)* 4, No. 2 (2019): 167-188. <https://doi.org/10.15294/jils.v4i2.34757>; Muhammad Ikhsan Lubis, "Implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Law No. 5 of 1990 in Law Enforcement Efforts and Guarantees of Environmental Rights in Gunung Leuser National Park, Indonesia". *JILS (Journal of Indonesian Legal Studies)* 2, No. 1 (2017): 55-78. <https://doi.org/10.15294/jils.v2i01.16635>.

⁵ Muzaki, "Pengendalian Kebakaran Hutan Melalui Penguatan Peran Polisi Kehutanan Untuk Mewujudkan Sustainable Development Goals."

⁶ Suwari Akhmaddhian, "Penegakan Hukum Lingkungan dan Pengaruhnya Terhadap Pertumbuhan Ekonomi di Indonesia (Studi Kebakaran Hutan Tahun 2015)," *Jurnal Unifikasi* 3, No. 1 (2016). See also Hety Herawati and Heru Santoso. "Tropical forest susceptibility to and risk of fire under changing climate: A review of fire nature, policy and institutions in Indonesia." *Forest Policy and Economics* 13, No. 4 (2011): 227-233. <https://doi.org/10.1016/j.forpol.2011.02.006>; Evizal Abdul Kadir, et al. "Forest fire spreading

- 1) Soil Pollution
- 2) Air pollution
- 3) Water pollution

The conditions for a substance to be called a pollutant if its presence can cause harm to living things, a substance is called a pollutant if:

- 1) The amount exceeds the normal amount
- 2) Being at the wrong time
- 3) Being in the wrong place

While the nature of the pollutants are:

- 1) Destructive for a while, but when it has reacted with environmental substances it does not damage anymore
- 2) Damage in the long term, for example, there is a substance that does not damage when the concentration is low but if in the long term it can accumulate in the body to a damaging level.

Environmental damage that occurs due to pollution is damage that changes both directly and/or indirectly to physical properties; chemical, and/or biological environment that exceeds the standard criteria for environmental damage.⁷

Climate change can be used as an example of a result of environmental pollution caused by human activities, causing changes in the composition of the global atmosphere and in addition to changes in natural climate variability observed over comparable time periods. Climate change that can occur today is mostly influenced by air pollution which makes the earth's crust thinning. In this case, we will discuss in more depth about air pollution because as in the original theme "Forest Fires Cause Transboundary Air Pollution".

According to the World Health Organization (WHO), the level of pollution is based on the level of contaminants and the duration of the contract. The level of pollution is divided into three, namely:

- 1) Pollution that begins to cause mild irritation (disruption) to the five senses and the body and has caused damage to other ecosystems. For example, motor vehicle exhaust gases that cause sore eyes.
- 2) Pollution that has resulted in a reaction in the body's physiology that causes chronic pain. For example, contamination of Hg (mercury) in Minamata Japan which causes cancer and birth defects.

and carbon concentration identification in tropical region Indonesia." *Alexandria Engineering Journal* 61, No. 2 (2022): 1551-1561. <https://www.doi.org/10.1016/j.aej.2021.06.064>

⁷ Erdiansyah, "Implementasi Pertanggungjawaban Pidana Korporasi Pembakaran Hutan dan Lahan di Provinsi Riau," *Jurnal Ilmu Hukum* 4, No. 3 (2015).

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- 3) Pollution whose levels of pollutant substances are so large that it causes disturbance and illness or death in the environment. For example, nuclear pollution.

Based on the formation, the classification of air pollutants can be divided into:

- 1) Primary Air Pollutants Pollutants caused directly from air pollution sources
- 2) Secondary Air Pollutants Are pollutants formed from the reactions of primary pollutants in the atmosphere. Example: Sulfur dioxide, Sulfur monoxide and water vapor will produce sulfuric acid.

2. Constitution and The Environmental Law Enforcement

The 1945 Constitution of the Republic of Indonesia is the legal basis that already exists and is in effect today. The Law also requires citizens to utilize natural resources and use them according to their needs, as mandated in the 1945 Constitution of the Republic of Indonesia Article 3 paragraph (3) which states that the earth, water, and the wealth contained therein are controlled by the State. and can be used as much as possible for the prosperity and welfare of the Indonesian people. Development actually has the aim of being able to improve the quality of human life for the better, but over time development carried out by ignoring various regulations will have an effect on a bad environment. Biodiversity is no longer able to withstand various impacts that cause enormous environmental damage and pollution, such as the case of forest fires in Indonesia. Pollution and environmental damage in the case of forest fires in Indonesia actually need regulations that can have a deterrent effect. For this reason, the government has issued a regulation to provide protection for the environment, especially in the case of forest fires by issuing Law Number 32 of 2009 concerning Environmental Management and Protection. With the enactment of the law, the role of the law will likely have a very big influence on changes occurring, where the law will further strengthen the planning and law enforcement aspects.⁸

Environmental law is also often regarded as a juridical instrument for any environmental management and protection. Therefore, in every implementation of environmental law, the general principles of good

⁸ Anita Afriana and Efa Laela Fakhriah, "Inklusivitas Penegakan Hukum Lingkungan Melalui Tanggung Jawab Mutlak: Suatu Tinjauan Terhadap Gugatan Kebakaran Hutan di Indonesia," *Jurnal Hukum Acara Perdata* 2, No. 2 (2016).

governance will always be taken into account.⁹ The existence of these principles will provide a goal so that in every implementation of applicable policies and regulations it will not deviate from the objectives of environmental management and protection that have been set for the common good so that everyone has the right to experience a beneficial and healthy environment. Life will always be related to environmental problems such as cases of forest fires, species extinction, deforestation, climate change, and others.¹⁰ To regulate all human actions to be able to protect the environment from various damages and pollution in order to achieve prosperity and sustainability for future generations. Environmental law is said to be effective if the goal is to achieve a goal where there are various aspects that are interrelated and work well in law enforcement.¹¹

Environmental law enforcement is a very important part of environmental law itself, where with clear law enforcement it can make people obey the law. The existence of environmental law enforcement can be used as a link in the environmental management and protection cycle with the order of legislation, standard setting, licensing, application, and law enforcement which will later be used as a way to organize values that will provide protection and management of the environment. Therefore, in environmental law enforcement there must be several instruments consisting of certainty, benefit, and justice which must have a relationship between one another.

Result and Discussion

1. International Forest Law: Case of Indonesia

Environmental protection is seen as a common interest that can be realized if there is cooperation between countries in the global and regional scope.¹² The importance of cooperation between countries in environmental protection is also reflected in Principle 27 of the Rio Declaration, namely: "States and people shall cooperate in good faith and in aspiration of partnership in the fulfillment of principles embodied in this Declaration and

⁹ M Nurul Fajri, "Penindakan Pelaku Pembakaran Hutan dan Lahan dengan Pendekatan Undang-Undang Pemberantasan Tindak Pidana Korupsi," *Jurnal Integritas* 2, No. 1 (2016).

¹⁰ Fakhriah, "Inklusivitas Penegakan Hukum Lingkungan Melalui Tanggung Jawab Mutlak: Suatu Tinjauan Terhadap Gugatan Kebakaran Hutan Di Indonesia."

¹¹ Dina ST Manurung, "Pengaturan Hukum Internasional Tentang Tanggungjawab Negara Dalam Pencemaran Udara Lintas Batas," *Jurnal USU*, 2014.

¹² Loade Muhamad Fathun, "Bencana Hutan dalam Hubungan Internasional," *Andalas Journal of International Studies* 5, No. 1 (2016).

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in the further development of international law in the field of sustainable development” (States and peoples will cooperate in good faith and in the spirit of partnership in the fulfillment of the principles contained in this Declaration and in the further development of international law in the field of sustainable development).¹³

In the previous section, we discussed the Earth Summit, to follow up and see the results that have been achieved so far, in 1997 in New York, USA, a meeting called the Rio +5 Conference (Earth Summit +5) was held. This conference reports on the results of the 1992 Earth Summit that have been achieved and implemented by UN members including Indonesia.

The document has been prepared by the United Nations Economic and Social Council (UNECOSOC) through the Commission on Sustainable Development (CSD) entitled “Programme for Advanced Implementation of Agenda 21.” At the same time, the 55th General Assembly was convened which decided in December 2000 that the CSD should act as the central management body to organize the World Conference on Sustainable Development to be held in 2002.

In 2002, the Rio +10 High Level Conference in Johannesburg on Sustainable Development (World Summit on Sustainable Development/ Summit) was held with the aim of emphasizing environmental issues more broadly with other development aspects, namely the concept of sustainable development.

The final result of this summit has succeeded in deciding to approve the documents that have been prepared at the preparatory committee meeting, including:

- 1) The Johannesburg Declaration on Sustainable Development (Johannesburg Declaration on Sustainable Development) which contains 6 things that must be implemented and 37 principles that must be implemented for sustainable development;
- 2) Johannesburg Plan of Implementation.

In addition, international environmental law arrangements can be linked to the 1972 Stockholm Conference. With the emergence of international community awareness about the importance of protecting and preserving the environment, the 1972 Stockholm Declaration (Declaration of the United Nation Conferences on the Human Environment) was formed. This Declaration generally regulates by having Preamble, 26 Principles and 109 Recommendations to implement the principles governing

¹³ Fathun.

the protection of the natural environment (natural environment), the use of natural resources that are not used up, protection of flora and fauna, restrictions on the disposal of toxic substances, problems pollution of the marine environment and so on. Basically, this is closely related to Principles 2 to 5 of the Stockholm Declaration which are generally based on the use and protection of natural resources based on natural ecosystems, so that the carrying capacity of the earth is maintained, natural resources are managed, waste is prevented, and its use can be obtained by all mankind. Therefore, countries must carry out coordinated cooperation in planning each of their activities, especially in anticipating various interests in the use of the environment, be it the marine, air or land environment.¹⁴ The Stockholm Declaration expressly states that every country must protect its environment so that it does not cause damage, let alone to the detriment of other countries. However, there are still frequent forest fires that have damaged the forest environment itself and the impact is also felt by other countries (transboundary). Therefore, this problem must be resolved as soon as possible so that there are no disputes between countries and must be carried out in a peaceful manner.

Some of the principles that are used as the legal basis for solving environmental problems internationally, namely:

- 1) The principle of state sovereignty (State Sovereignty);
- 2) The principle of the common heritage of humankind;
- 3) The principle of the common concern of humankind (Principle of Common Concern of Humankind);
- 4) The principle of obligation not to cause environmental harm;
- 5) The principle of state responsibility;
- 6) The principle of intergenerational equity (Principle of Intergenerational Equity);
- 7) The principle of common but Differentiated Responsibilities;
- 8) The precautionary principle (The Precautionary Principle);
- 9) The principle of prevention (The Principle of Prevention);
- 10) The principle of obligation to access environmental impacts (Duty to Access Environmental Impacts);
- 11) The Principle of Subsidiarity;
- 12) The principle of good neighbors and the obligation to cooperate (Good Neighborliness and the Duty to Cooperate);

¹⁴ Manurung, "Pengaturan Hukum Internasional Tentang Tanggungjawab Negara dalam Pencemaran Udara Lintas Batas."

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- 13) The principle is obliged to provide prior notification and to consult in good faith (Duties to Provide Prior Notification and to Consult in Good Faith);
- 14) The principle of the obligation not to discriminate against environmental hazards (Duty Not to Discriminate Regarding Environmental Harms);
- 15) The principle of equal rights of access to justice;
- 16) The Polluter and User Pays Principle.

Other international legal instruments relating to regulations relating to transboundary air pollution are The Geneva Convention on The Long-Range Transboundary Air Pollutant 1979 (Geneva Convention 1979). The 1979 Geneva Convention expressly states in Article 2: “The Contracting Parties, taking due account of the facts and problems involved, are determined to protect man and his environment against air pollution and shall endeavour to limit and, as far as possible, gradually reduce and prevent air pollution, including long-range transboundary pollution” (Requires the countries participating in the convention to try to reduce it as low as possible, gradually reduce and prevent air pollution, including transboundary air pollution).¹⁵

The 1979 Geneva Convention invites its members to cooperate in the field of research and development, particularly in the fields of emission reduction technologies, instruments or techniques for monitoring and measuring emission levels and concentrations of air pollutants, as an educational and training program relevant to air control.

2. National Forest Fire Law

Several policies implemented by the Government of Indonesia in order to prevent forest fires and forest management, include:

- a. Law Number 41 of 1999 concerning Forestry, based on Article 78 paragraph 3 where the perpetrator can be punished with a maximum of 15 years and a maximum fine of five billion rupiah (Rp 5 billion).
- b. Law Number 18 of 2004 concerning Plantations, based on Article 49 paragraph 1 which states that if burning is carried out intentionally, it is punishable by a maximum imprisonment of three (3) years and a fine of three billion rupiah (Rp 3 billion).
- c. Law Number 32 of 2009 concerning Environmental Protection and Management, based on Article 109 states that people who burn land are threatened with a maximum sentence of ten (10) years and a maximum fine of ten billion rupiah (Rp 10 billion).

¹⁵ Fathun, “Bencana Hutan dalam Hubungan Internasional.”

- d. Law Number 5 of 1990 concerning Conservation of Biological Natural Resources and Their Ecosystems, based on Article 40 paragraph 2 states that each perpetrator is punishable by a maximum of five (5) years in prison and a maximum fine of one hundred million rupiah (Rp. 100,000,000.00).
- e. Law Number 45 of 2004 concerning Forest Protection, based on Article 42 that anyone who violates is threatened with five (5) years in prison and a maximum fine of ten billion rupiah (Rp 10 billion).

3. State Responsibility for Forest Fires Under International Law

According to J.G. Starke in his book *Stark's International Law*, put forward the definition of International Law is a collection of laws which for the most part consist of principles and rules of conduct which states themselves feel bound and respect, and thus they (states) are also includes:

- a. Legal regulations relating to the functioning of international institutions or organizations, relations between international organizations and other international organizations, relations between international organizations and individuals;
- b. Certain legal regulations relating to individual individuals and non-state legal subjects (non-state entities) insofar as the rights and obligations of individuals and non-state legal subjects are related to issues of the international community.

In the Draft Articles on State Responsibility adopted by the International Law Commission (ILC), it is stated in article 1 that “*Every internationally wrongful act of a State entails the international responsibility of that State*”. The ILC Draft is not binding as an international legal instrument because it has not been established as a legal product. However, the binding power of the ILC Draft is not seen from its form as an instrument, but from its content. The ILC Draft can be used as an additional and binding resource as customary international law.

In full, the forms of state accountability are regulated in the articles of the ILC draft. Compensation or reparation is regulated in Article 31, the form of compensation can be in the form of, among others: 1. Restitution (Article 35) states that, the obligation to return the injured condition to its original state; 2. Compensation (Article 36) states that, the obligation to compensate

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in the form of material or money; 3. Satisfaction (Article 37) states that, regret, a formal apology.¹⁶

In the case of transboundary haze pollution, a disadvantaged country can sue the Indonesian government because according to a number of international conventions that have also been ratified by Indonesia, such as the Biodiversity Convention and Climate Change Convention and the ASEAN Agreement on the Conservation of Nature and Natural Resources 1985, which Indonesia has ratified, which contains provisions that states may exploit their natural resources, but are obliged to ensure that these activities do not cause damage to the territory of other countries (state responsibility). This provision has even become international customary law and is binding on all civilized countries and has even been applied since 1941 in the Trail Smelter case (United States vs. Canada).

The above provisions have also been adopted in Law (UU) Number 32 of 2009 concerning Environmental Protection and Management based on Article 67, namely "Everyone is obliged to preserve environmental functions and control environmental pollution and/or damage." Therefore, there is no legal reason that can absolve Indonesia from responsibility if the aggrieved country sues Indonesia. Indonesia's responsibility is further strengthened by Indonesia's own national law because Law No. 4 of 1999 on Forestry and Government Regulation (PP), No. 4 of 2001 concerning Forest Fires and Government Regulation No. 45 of 2004 concerning Forest Protection strictly prohibits forest burning.

4. Factors Causing Forest Fires

It can be said that there are three main factors that cause forest fires, namely fuel conditions, weather, and social culture of the community. The condition of the fuel in question is the vulnerable which is abundant on the forest floor, the water content is relatively low (dry), and the availability of sustainable fuel. The weather factors are influenced by temperature, wind humidity and rainfall. High temperatures due to direct sunlight cause the fuel to dry out and flammable, high humidity in dense vegetation can reduce the potential for forest fires, and wind also affects the drying process of fuel and the speed of fire spread, while rainfall affects the size of the water content. contained in the fuel. The socio-cultural factors of the community include:

- a. Use of fire in forest preparation activities

¹⁶ Manurung, "Pengaturan Hukum Internasional Tentang Tanggungjawab Negara dalam Pencemaran Udara Lintas Batas."

Often the use of fire is still used by humans to clear land such as agricultural land and plantation land such as coffee and cocoa. This is based on the difference in high production costs so that people around forest areas prefer to use fire in clearing land preparation. In terms of cost, the use of fire is considered more effective.

b. Disappointment with the forest management system

Conflicts that arise in the community living around forest areas also create anarchic actions so that the forest is exposed to a destructive effect as well. The main problem of the conflict is the problem of forest management systems that do not provide economic benefits to the community. This is further supported if the level of public education and knowledge about forests is still minimal. They do not really understand that their actions will have a major impact on the forest which is their main source of livelihood.

c. Illegal logging

Illegal logging is logging that occurs in a forest area that is carried out illegally so that it reduces or changes the initial function of the forest.¹⁷ The government has banned this illegal act, but people are still often caught doing it. Deforestation results in a large number of critical lands with a high level of talent vulnerability. The fuel (leaves, branches, and twigs) left behind will continue to grow and accumulate. Piles of dry fuel have a high potential to cause fires, especially in the dry season.

d. The Need for Forage Forage

Communities around forest areas take advantage of forest resources, one of which is a place to feed their livestock. Livestock, mainly cows, is a form of side business to meet the family needs of the people living around the forest. In addition to Forage, a grazing area is also required that must be met for their livestock. Usually, the community gets grass with good quality and has a high level of palatability by burning grassland areas that are no longer productive. The new grass that grows will have a better quality with a higher nutritional content.

e. Forest encroachment

Population movement or migration can be a factor causing forest fires. As the number of families increases, so does the need to fulfill them. This makes life more complex because it has to meet the increasing number of family members so that it has an impact on increasing the area of arable land. The farmers who clear the land are a threat to forest

¹⁷ M Pasai, "Dampak Kebakaran Hutan dan Penegakan Hukum," *Jurnal Pahlawan* 3, No. 1 (2020).

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sustainability. The risk of forest fires is increasing with the conversion from natural forest to forest plantations and plantations (oil palm, rubber).¹⁸ In addition to using fire, land clearing is also often done using a slashing system.

f. Another reason

Low awareness of the community can be a trigger for forest fires. For example, if there are people who have a high interaction with the forest. One of the forms is the habit of residents taking rattan, usually while smoking, they unconsciously throw cigarette butts into forest areas that have a high potential for burning with abundant fuel (leaves, stems, and twigs).

In addition to the factors above, there are other factors that can cause forest fires, both due to human and natural causes, such as El-Nino Influence in which that natural drought which is the cause of the El-Nino (ENSO) can also affect the scope of forest fires to expand as land becomes more easily burned. El-Nino can affect the retreat of the rainy season so that it can make the forest condition drier. This condition is very beneficial for forest firefighters because it makes it easier for community elements and companies to burn land for conversion so that it benefits them economically.

5. Impact of Forest Fires

Forest fires are large-scale disasters that have a huge impact on life.¹⁹ Losses due to forest fires attack various aspects of Indonesian people's lives, ranging from health, social, ecological, economic and reputation problems. For humans, the greatest impact is the economic impact caused by the loss of the benefits of forest potential such as forest tree stands that human often use as building materials, food, medicine, and animals that live in the forest to meet the need for protein. animals and recreation. For animals that live in the forest, the impact that can affect them is the reduction in shelter due to the area of land that has been burned. Furthermore, forest fires can also cause ecological impacts, namely the unavailability of clean air as a result of forest vegetation and the absence of forest functions as guardians of water systems and preventing erosion.

a. Economic Impact

¹⁸ R. S Septianingrum, "Dampak Kebakaran Hutan Di Indonesia Tahun 2015 Dalam Kehidupan Masyarakat," 2018.

¹⁹ Sri Maryani, "Pengaruh Deforestasi Dan Tingkat Kebakaran Hutan Terhadap Tingkat Emisi Gas Rumah Kaca," *Jurnal Publikasi Penelitian Terapan dan Kebijakan* 3, No. 2 (2020).

If you want to measure the impact caused by forest fires, precise measurements are needed, it is very difficult if it is too early. For example, in 2015 the World Bank published a report published after the 2015 fires that estimated the cost of the haze crisis at US\$16 billion (Waluyo, 2009; This estimate includes losses in agriculture, forestry, transportation, trade, industry, tourism, and other sectors (Septianingrum, 2018). No small amount to restore the situation at the time of the crisis. Indonesia also suffers from the loss of natural resources due to forest fires that can be utilized such as timber and non-timber forest products, as well as reduced ecotourism. Whereas natural resources and ecotourism are a source of foreign exchange for the country. Indonesia's reputation in the eyes of the international community will decrease due to the smog that is flying to neighboring countries.

b. Impact of Biodiversity

Forest fires have a major impact on the state of the environment there. Forest fires, whether intentional or certain, will cause the extinction of wet tropical forests.²⁰ Just imagine the area of tropical rain forests in the world only covers 7% of the earth's surface area, but contains more than 50% of the total species that exist throughout the world. How important forests are to biodiversity in this world. Forests that are heavily burned will be difficult to restore, because the soil structure is damaged. This has a major impact on environmental damage which is fatal because it will kill all kinds of things that exist in the forest environment, such as animals, biota that are needed to balance our lives, medicinal plants, resin, wood, fruits and so on. The loss of natural resources in forest areas will affect the increase in the global warming process, anticipation of flooding, and other natural disasters. If this continues, over time it will be the people who inhabit the area around it who will suffer the consequences. Restoration of forests to return to their original state takes a long time, even hundreds of years.

c. Health Impact

Forest fires of course have an impact on the environment, not only the environment in Indonesia's territory, but also other countries bordering the territory of Indonesia.²¹ The environmental impact that can occur is

²⁰ B Wasis, "Dampak Kebakaran Hutan Dan Lahan Terhadap Kerusakan Tanah (Impact of Forest and Land Fire on Soil Degradation)," *Jurnal Manajemen Hutan Tropika* 9, No. 2 (2003).

²¹ Fadli, S., & Nazaruddin, "Tanggungjawab Negara Terhadap Kebakaran Hutan di Indonesia Ditinjau dari Perspektif Hukum Internasional," No. 2 (2019).

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pollution which can cause diseases of the respiratory tract. Air pollution makes the activities carried out by the community become disrupted, especially outdoor activities such as going to school, working, farming, and so on because of the smog.²² The smog that flies in the territory of Indonesia is also carried by the wind to the territory of neighboring countries, causing discomfort. This has often been questioned by neighboring countries such as Malaysia and Singapore. In fact, in 2015 the smog extended to the Philippines, Thailand.²³ In the health sector, in 2015 there were 24 people who died due to forest fires, more than 600 thousand people were infected with acute respiratory infections (ARI), and 60 million people were exposed to the smoke. Apart from ARI, smog due to forest fires can also cause other diseases such as pneumonia, asthma, eye irritation, and skin irritation.²⁴ In 2019 from February to September the number of ARI sufferers based on the total was 919,516 people. Judging from the data, there are six provinces with the most ARI sufferers due to forest fires, including Riau, South Sumatra, Jambi, West Kalimantan, Central Kalimantan, and South Kalimantan. The victims who are most vulnerable to ARI are young children. They do not yet have a strong immune system because they are still in the growing stage. UNICEF explains that babies born to mothers with a high risk of exposure to pollution during pregnancy will make babies have low birth weight and be born prematurely.²⁵

d. Social and Cultural Impact

In addition to the various impacts above, forest fires also cause people to suffer losses due to the loss of livelihood sources in the forest. Forests that store diversity of plants and animals are a source of livelihood for the community. Another thing that has happened is related to the livelihoods of the indigenous peoples who live in the forest area. Indigenous peoples are very dependent on the existence of forests,

²² Ferawati Artauli Hasibuan Abidin, Jainal, "Pengaruh Dampak Pencemaran Udara Terhadap Kesehatan Untuk Menambah Pemahaman Masyarakat Awam Tentang Bahaya dari Polusi Udara," 2019.

²³ Hartiwiningsih, "Model Penegakan Hukum Tindak Pidana Pembakaran Hutan Guna Mewujudkan Green And Clean Policy," n.d.

²⁴ Hermanus B. Rumajomi, "Kebakaran Hutan di Indonesia dan Dampaknya Terhadap Kesehatan," 2006.

²⁵ See Eko Priyo Purnomo, Abitassha Az Zahra, Ajree Ducol Malawani, and Prathivadi Anand. "The Kalimantan Forest fires: an actor analysis based on supreme court documents in Indonesia." *Sustainability* 13, No. 4 (2021): 2342. <https://doi.org/10.3390/su13042342>; Marhaeni Ria Siombo, "Local wisdom as basic material for drafting local government regulations: A case study of Dayak forest fires in Kalimantan, Indonesia." *Linguistics and Culture Review* 5, No. S3 (2021): 1067-1075. <https://doi.org/10.21744/lingcure.v5nS3.1690>

but only use them sparingly. In the forest, indigenous peoples used to clear land to grow crops and hunt animals for later consumption. Ordinary people who use forests as their main source of livelihood will also be affected. The main result of forest fires is the presence of smog pollution that interferes with every activity of human life. The presence of haze pollution will disrupt trade and school activities in the area around forest fires. As a result, economic activity for many low-income families will potentially make their poverty level higher.

6. Countermeasures

Humans live side by side with nature and depend on it so that humans should participate in preserving the existence of nature. Very often the destruction is done by humans by not applying the concept of sustainability. This creates environmental problems which in the end also harm humans themselves. Disasters such as floods, soil erosion make environmental conditions become worrisome. The condition of the environment that was previously beautiful due to human actions has actually become damaged and takes a long time to recover. In fact, there are some that cannot be recovered and only leave a mark. Forest fires are a problem that is often faced by the people of Indonesia and has developed into a scourge that haunts every year.

Law enforcement on forest fire problems must be addressed by the government so that the community and other parties are not harmed again by forest fires. Because the loss is not only felt by the people of Indonesia, but also neighboring countries that are affected by smoke pollution from forest fires. In this case, in addition to law enforcement that regulates, there needs to be assistance from the government and officials to be able to provide protection to the environment so that problems that occur every year can be handled properly.²⁶ Regarding the environment, the law that regulates it has been contained in Law Number 23 of 1997 concerning Environmental Management.

The handling of forest fires until 2015 seemed to be only sporadic and only responsive during emergencies. In fact, this can make forest fires more difficult to overcome and have a big effect on Indonesia. The bad effect that

²⁶ Suharno Nisa, A. N., "Penegakan Hukum Terhadap Permasalahan Lingkungan Hidup untuk Mewujudkan Pembangunan Berkelanjutan (Studi Kasus Kebakaran Hutan di Indonesia)," *Jurnal Bina Mulia Hukum* 4, No. 2 (2020).

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can be caused is bad diplomacy with other countries. Regarding actions during forest fires, the right steps are to take precautions (pre-disaster), emergency response, and post-disaster. The importance of overcoming forest fires is because the problems caused have a broad scope, not only within the country, but also become global problems. In disaster management there are three activities to manage disasters:

a. Preventive Aspect

Preventive activities are carried out with efforts to prevent and take precautions so that disasters do not occur. Preventive activities that have been carried out by the forest and land fire task force are: 1) Outreach to the community, companies, and all related parties that have the potential to trigger forest and land fires. Various socializations were carried out using various methods such as using outdoor media (billboards, banners, posters, and leaflets) that could be accessed up to the village level; institutional approach Together with local government, especially village officials, Babinsa, extension workers, community leaders, and NGOs; then the mass media, both print and online. 2) Education and Counseling, an effort to instill knowledge in the community intensively so that the community is involved and is responsible for preventing forest and land fires. Various activities that can be carried out are providing direct appeals to the community in formal and non-formal forums; involving farmer groups; youth and various other elements. Institutions that can provide counseling at the forefront are Babinsa, village officials, agricultural extension workers, and SKPD. 3) Investigation and legal action. Investigations can be carried out with elements of the village government, SKPD, Regency Government, Police and the Judiciary involved. 4) Hold a competition to find the perpetrators of forest fires. The person who can find the culprit will be rewarded for his achievements. One of the places that use this is South Sumatra. 5) Publication or opinion through mass media. The academics were invited by the task force to combat forest fires to publish about the dangers posed by forest fires. Opinions in the mass media are also important in order to voice ideas about the importance of protecting the environment, especially by not burning forests. 6) Construction of canal blocking. This option is implemented by knowing that peatlands often dry up in the dry season, causing fires and causing fires. One way to solve this problem is to flood it with water so that it always stays wet in the dry season. There have been 1,523 canal blocks to deal with forest fires in

four priority provinces. 7) Technological innovation. With the development of technology, it is hoped that it will further help prevent forest fires and reduce the costs that must be borne by the state to pay for losses. Technological innovations have been implemented by South Sumatra using Bios 44, Gapo Oil, Nusantara Foam 44, and Sikowil (Regional Command Information System) products. From the data that has been obtained in South Sumatra, Bios 44 has an effective use in fertilizing the land.

b. Mitigation Aspect

Mitigation aspect is an activity to reduce the risk obtained when a disaster occurs. 1) Data collection and recording. In this data collection and recording activity, measurements are made on forest land how large the area of land that is vulnerable and has the potential for forest fires to occur. This is useful so that the task force can take risks from each land so that it can be minimized in the event of a forest fire disaster. Involved various parties such as the Peat Restoration Agency (BRG), Regional Peat Restoration Team (TRGD), companies, NGOs, Consortium Institutions, and SKPD. There are weaknesses in the measurement system due to variations in the data generated and the lack of detail in the data provided. 2) Routine patrols. Patrols are carried out by the task force together with the community to routinely check areas that have the potential for forest fires to occur. These activities will be carried out more intensely when the dry season comes. The vehicles used during patrols also vary, ranging from motorbikes, patrol cars, walking, drones, and helicopters. 3) Encouraging community involvement in the Fire Care Village organization. *Desa Peduli Api* is a collaborative program between the Task Force, TRG, the Company, and elements of the community around the forest area. Basically, the Fire Care Village has two functions at once, namely mitigation and preparedness.

c. Aspects of Preparedness

Preparedness is a quick measure used to respond when a disaster occurs. 1) To stipulate a Governor's Decree regarding the determination of the Task Force. 2) Implementation of routine task force meetings in order to divide tasks among each member of the task force. 3) Make efforts to synchronize the work program of the task force with other institutions within the task force unit. 4) Conduct coordination meetings with other parties such as district/city government elements, companies, community groups, TRGD and BRG to discuss the role of each party in

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responding to forest and land fire disasters. 5) Coordination with the Regional Peat Restoration Team (TGRD) and the Peat Restoration Agency (BRG). 6) Establishment of forest fire control posts which are determined according to the area of the area. In South Sumatra, the number of command posts reached 569, which were divided into BPBD, Korem, Fire Care Community (MPA), Manggala Agni, Industrial Plantation Forest (HTI) companies, Joint Command Post, and Fire Care Village Command Post. The company also coordinates with the task force and other parties. 7) Construction of drilled wells as a source of water for fire fighting. 8) Equipment and infrastructure to deal with forest fires.

7. The Ideal Effort Made

Indonesia is a state of law, in accordance with Article 1 paragraph (3) so that the efforts to be made must be in accordance with the existing law. Some of the regulations that are used as the legal basis for fighting forest and land fires in Indonesia are²⁷:

- a. Law Number 23 of 1997 concerning Environmental Management which stipulates that everyone is to preserve the environment and prevent and overcome environmental pollution and destruction. The most severe criminal sanction is 10 years in prison and a maximum fine of Rp. 500,000,000.00. Other sanctions can also be imposed, namely by forfeiture of profits, company closure, and damage repair.
- b. Law Number 41 of 1999 concerning Forestry, Article 50 paragraph (3) states that forest burning is subject to a maximum imprisonment of 15 years and/or a maximum fine of Rp. 15 billion. Furthermore, Article 78 paragraph (4) is subject to a maximum fine of 5 years imprisonment and/or a maximum fine of Rp. 1.5 billion.
- c. Government Regulation Number 4 of 2001 concerning Control of Environmental Damage and Pollution. There is a prohibition on forest burning with administrative sanctions.
- d. Government Regulation Number 45 of 2004 concerning Forest Protection Article 10 paragraph (2) letter b regulates forest protection activities which include prevention, suppression, and handling of fire impacts. Furthermore, in Articles 42 and 43, the imposition of criminal

²⁷ B Parsaulian, "Analisis Kebijakan dalam Upaya Penegakan Hukum Lingkungan Hidup di Indonesia". *Jurnal Reformasi Administrasi* 7, No. 1 (2020).

- sanctions on forest burning parties is only applied to parties who do not have letters and permits for forest products.
- e. Law No. 18 of 2004 concerning Plantations with demands for the obligation to preserve environmental functions. The sanctions imposed are in the form of imprisonment for a maximum of 3 years and a fine of a maximum of Rp. 3 billion or both.
 - f. Law Number 19 of 2004 concerning Forestry which states the prohibition of forest burning. Forest burning is permitted on condition that it is for special purposes or unavoidable conditions such as controlling forest fires, eradicating pests and diseases, as well as fostering plant and animal habitats. The maximum sanction imposed is 15 years in prison and a maximum fine of IDR 5 billion. If the result of negligence is threatened with imprisonment for a maximum of 5 years and a fine of Rp. 1.5 billion or cumulative sanctions.
 - g. Law Number 32 of 2009 concerning Environmental Processing. In Article 69 it is explained that an act against the law is an act that results in pollution and/or damage to the environment. In this law there are criminal sanctions for those who burn forests.

8. *Forest and Land Fire Prevention*

One of the causes of forest fires is peat soil that dries up, especially in the dry season. Therefore, it is necessary to take steps to prevent fires on peatlands. According to the Head of the Peat and Mangrove Restoration Agency, Hartono Prawiraatmadja, which was conveyed on the official website of the Ministry of Environment and Forestry of the Republic of Indonesia there are several corrective steps that the government can take to prevent fires on peatlands, including revising and issuing regulations to provide peat protection. sustainable development, encouraging and fostering permit holders to continue to restore their work areas in peat areas, establishing the Peat Restoration Agency (BRG) so that they can accelerate the restoration of degraded peat in 7 provinces, provide massive socialization and education to the community, and facilitate local governments (Pemda) and the community in restoring the peat ecosystem.²⁸

Furthermore, Practitioner Forester Soewarso said that to prevent forest fires permanently, a socio-economic approach was necessary. The approach is in the form of a fire-prone area security approach and an engineering

²⁸ Yusnarida Eka Nizmi Geovani Meiwanda, "Kompleksitas Penanggulangan Kebakaran Hutan dan Kabut Asap di Indonesia" 3, No. 1 (2021).

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approach. The Desa Makmur Peduli Api (DMPA) program, which is the basis for improving welfare, is also one of the effective peat swamp forest fire prevention strategies and has a high prospect of success. There is one activity that is considered effective enough to prevent fires, namely Land Clearing Without Burning (PLTB). However, this method requires the commitment and collaboration of various stakeholders in a holistic manner.

Forest and Land Fire Expert, Faculty of Forestry and Environment, IPB University, Lailan Syaufina, has several suggestions for preventing and dealing with forest and land fires. One of them is the science and technology innovation for Peat Ecosystem Governance. Several technologies for controlling forest fires, including fire early warning systems, fire information systems and early detection, mobile applications for forest and land fire patrols, monitoring systems for peatland conditions using IoT, developing methods for measuring burned areas and carbon emissions based on remote sensing technology, assessments, post-fire areas, and land preparation technology without burning.

Conclusion

The principle of state responsibility according to international law according to J.G. Starke are (a) legal regulations relating to functioning of international institutions or organizations, relationship between international organizations and international organizations others, the relationship between international organizations and individuals; (b) Certain legal regulations relating to individual individuals and non-state legal subjects (non-state entities) to the extent that the rights and obligations of individuals and non-state legal subjects related to the problems of the international community. Furthermore, the regulation of haze pollution in international law can be seen from several existing declarations and conventions, such as in the 1972 Stockholm Declaration which recognizes the basic human right to live in a good and healthy environment and is obliged to maintain and be responsible for all actions to protect the environment. prevent pollution. If the pollution is a forest fire, it can be linked to the 1992 Rio Declaration. In the context of the international convention, The Geneva Convention on the Long-Range Transboundary Air Pollution 1979 (Geneva Convention 1979) which in Article 2 stipulates that it obliges the countries participating in the

convention to try suppressing as low as possible, gradually reduce and prevent air pollution including transboundary pollution.

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