



Increasing Temperature Changes on Human Health: From an Environmental Law Perspective in Indonesia

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Abstract. Globally, daily activities may contribute to rising temperatures that will have an influence on people's health. In an attempt to manage and safeguard the environment, Indonesia has released environmental regulations. The successful implementation of these regulations will largely rely on collaborative efforts from all parties involved in the issue of rising earth temperatures, as well as from stakeholders such as the government. This study aims to educate readers on Indonesian legislative frameworks and principles pertaining to environmental management and protection. Research from the standpoint of environmental law will be created by taking and evaluating many literature evaluations. In order to create an understanding of environmental legislation related the increase in earth temperature, analyze a number of literature studies that will be used as research materials. Pay particular attention to environmental management and protection regulations in Indonesia. This study will demonstrate how the Indonesian government has taken strong action to manage and protect the environment by enforcing penalties on violators, which may include administrative, civil, or even criminal penalties, in compliance with existing laws. This study will demonstrate how the earth's temperature is rising from the standpoint of environmental legislation. One of Indonesia's guiding concepts for environmental management and protection is that states have an obligation to handle environmental laws in a way that minimizes harm to human health by preventing global warming.

Keywords: Environment, Health, Legal.

1 Introduction

Given the growing severity of the environmental catastrophe, environmental issues are fascinating and complicated issues that require further research. Every human activity—eating, drinking, working, and even sleeping—requires the support of a decent living environment. Consequently, one may argue that one of the fundamental components of human life is the environment. The health of people is significantly impacted by environmental pollution. Numerous global research have established the link between environmental pollution and human health issues [1]. Regulations that govern environmental management are therefore necessary. An activity or law enforcement effort that is conducted to uphold the law in conformity with the rules, laws, and/or regulations is known as environmental law enforcement. This legal stance is crucial for enforcing sensible environmental laws that may have an impact on public

health. It is possible to resolve these environmental issues through civil, administrative, and criminal enforcement. The Law on Environmental Protection and Management Number 32 of 2009 governs this in Indonesia [2]. Court rulings are rendered against people or businesses that harm the environment or pollute it in the course of enforcing environmental laws.

The earth's surface temperature rises as a result of global warming, which has been linked to environmental contamination in a number of earlier studies. The rise in immune-related diseases is one of the many detrimental effects that this rising planet temperature may have on human health. Aside from that, one natural calamity that could be impacted by the planet's rising temperature is drought. Dry skin is one of the many types of skin problems that could result from this natural disaster. Increasing climate change can have negative effects on social and economic spheres in addition to its effects on human health. As a result, Indonesian environmental law is governed by Law Number 32 of 2009. The framework of the law, which is increasingly prominent in regulating areas of planning and law enforcement, suggests that the purpose of the bill's enactment is to further enhance aspects of environmental law enforcement and planning. Indonesia joined in signing the Paris Agreement as a consistent measure made by the Indonesian government to limit climate change, which is a rise in Earth's temperature. A significant international accord to address climate change is the Paris accord.

2. Method

The average temperature of the Earth's atmosphere, seas, and land is rising due to global warming. According to researchers at the Center for International Forest Research (CIFR), greenhouse gases capture solar or infrared radiation and cause global warming. This greenhouse gas is found in the atmosphere, or the sky, naturally. On the other hand, heat that is unable to diffuse because it is trapped in the earth's atmosphere is said to as having a greenhouse effect. A few factors contributing to global warming are consumerism and lifestyle choices, as well as a variety of human activities that occasionally harm the ecosystem and release greenhouse gases. A number of illnesses that affect human health, including immune system-related ailments, respiratory issues, and skin cancer, are impacted by rising earth's temperature. According to data analyzed from 117 BMKG observation sites, October 2023 will have an average air temperature of 27.7 °C. In Indonesia, the average October 2023 climatological air temperature for the years 1991–2020 is 27.0 °C (within the usual range of 20.1 °C – 28.6 °C).

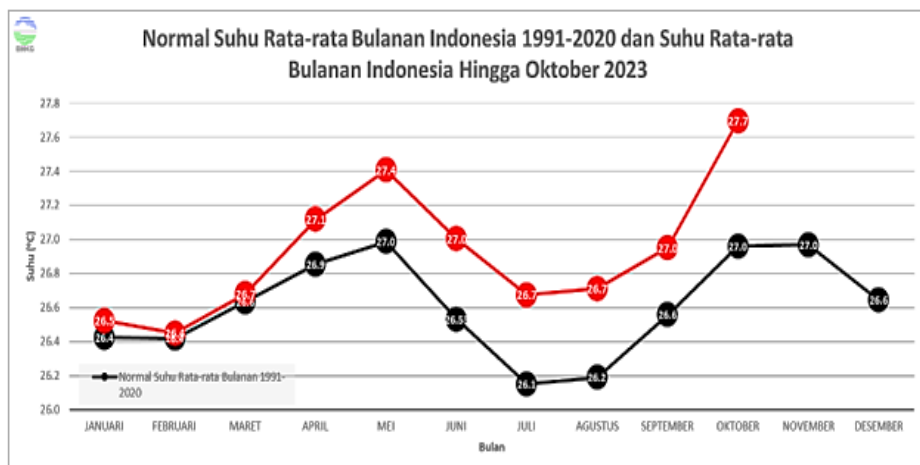


Figure 1. Normal monthly average temperature in Indonesia 1991-2020 and average monthly temperature in Indonesia until October 2023

These numbers indicate a positive anomaly of 0.7 °C for the average air temperature anomaly in October 2023. October 2023 saw the greatest anomaly value in Indonesian air temperature since 1981, during the measurement period. It will become more noticeable when the air temperature rises. The sooner this issue is resolved, the less of an impact it will have. According to article 1 paragraph (3) of the 1945 Constitution, Indonesia is a nation of laws. Law Number 32 of 2009 concerning Environmental Protection and Management outlines the nation's legal-based measures to regulate the environment. These regulations not only contain directives and bans, but they also include legal penalties of various kinds, including administrative, civil, and criminal penalties, for any infraction. This is the state's way of ensuring that natural resources are not used in a way that pollutes the environment or harms it

3. Result And Discussion

3.1 Environmental Management Based on Indonesian Legal Aspects

The environment is a component that is crucial to the existence of all living things, including people [3]. A clear indication of human environmental concerns is the deterioration of the environment, which will lead to a host of issues, including health issues. Rising temperatures on Earth's surface, whether on land, in the water, or both, indicate global warming. The earth's surface temperature rises due to solar radiation entering the atmosphere, whereupon a portion of the light is transformed into heat energy in the form of infrared rays, which are subsequently absorbed by both the air and the earth's surface. The earth's temperature rises as a result of some infrared light being reflected back into the atmosphere and being trapped by greenhouse gasses. Methane, carbon dioxide, and nitrogen oxide are the principal greenhouse gases that

are produced by human activity without consideration for the environment. Many experts think that human activities like burning coal for electricity, oil for transportation, and natural gas for cooking are the primary cause of global warming. Carbon dioxide and other gases are discharged into the atmosphere during the combustion process. We refer to these gases as greenhouse gases (GHG).

“Those aspects of human health and disease that are determined by factors in the environment” is how the World Health Organization (WHO) defines environmental health. It also refers to the idea and process of identifying and managing environmental elements that may have an impact on health. As a result of the heart having to work harder due to rising temperatures, more people will develop asthma and develop skin cancer if they already have sensitive skin. Aside from that, CO gas poisoning can occur as a result of elevated air pollution, which releases greenhouse gasses. When carbon monoxide gas enters the body, it transforms into carboxyhemoglobin (COHb) in the blood, which interferes with hemoglobin’s ability to carry oxygen throughout the body. Governments worldwide and all people have a responsibility to protect environmental sustainability through environmental management. In order to create a nice and healthy living environment, every citizen must take part. Regulations that govern environmental management are therefore necessary. Law enforcement acts and/or efforts that are made to enforce the law in conformity with the requirements and/or provisions of laws and regulations are referred to as environmental enforcement. If law enforcement personnel—both public servants and officials—apply the law correctly, it gains significance. Article 33 paragraph (3) of the Indonesian Constitution declares that the land, water, and natural resources within them are under state authority and should be utilized for the maximum benefit of the populace. The people’s wealth should be sustained for the benefit of both the current and next generations. A broad definition of law enforcement is the application and implementation of the law as well as the use of courts, arbitration panels, and other conflict resolution processes to bring legal action against illegal conduct and departures from the law [4]. Since law enforcement acts on behalf of the state at all times, it is imperative that they uphold and defend all of the citizens’ social interests.

When anything is said to be under state control, it implies that all actions pertaining to the land, water, and natural resources it contains are “controlled” by the state. According to the relevant environmental legislation, Indonesia possesses authority rights, meaning that the state is in charge of its natural resources. As a result, the state now “controls” all operations pertaining to the land, water, and natural resources found there. There are four functions that the State in charge of Natural Resources has: management (*bestuursdaad*), regulatory (*regelandaad*), management (*beheersdaad*), and supervisory (*toezichthoudensdaad*). The State in charge of natural resources has stated in Decision Number 001-021-022/PUU-I/2003 of the Constitutional Court that:

1. The state’s management function, or *bestuursdaad*, is carried out by the government, which has the power to grant and cancel licenses for concessions and licensing. This licensing authority is a way that the state is managing and safeguarding the environment. For instance, the state has the authority to cancel a factory’s permit if it engages in activities that may harm the environment, including

the appearance of greenhouse gas impacts. This is just one example of how the state can exercise its authority.

2. The state's setting function, or *regelandaad*, is carried out by the government (executive) and the Legislative Assembly (DPR) through legislative authority and regulations. Government regulations not only include prohibitions, but they also have the potential to punish those who disobey them. There are legal penalties for all violations, including administrative, civil, and criminal penalties. This is how the government ensures that natural resources are not used in a way that harms the environment and deters those who would utilize them.
3. The state, or government, exercises its control over the sources of wealth to be used for the greatest prosperity of the people through the following institutional instruments:
4. The management function (*beheersdaad*) is carried out by the state through share ownership mechanisms (shareholding) or through direct involvement in the management of State-Owned Enterprises or State-Owned Legal Entities; 4. The supervisory function (*toezichthoudensdaad*) is carried out by the state, or government, in order to supervise and control so that the exercise of control by the state over important branches of production or which control the lives of many people is truly carried out for the greatest prosperity of the people

The state's role is becoming more and more significant in formulating policies and carrying out choices as a result of its evolution from merely supervising to becoming involved in every aspect of its citizens' lives. Citizens will be required to abide by laws and regulations from the state in all of their endeavors. The state is in charge of seeing to it that governmental initiatives are carried out in the capacity of a welfare state. Ensuring the welfare of its citizens is another duty of the state. The goal of environmental enforcement is to develop and preserve a living environment that is usually enjoyable by everybody without causing disturbance to the environment itself. It encompasses a number of rather complex topics. Legislation has been formed in the form of laws and numerous implementing rules to stop the conduct of careless parties [5]. Court actions are not the only way that environmental laws be enforced with relation to environmental management and protection. There is a higher chance that the application of administrative punishments in pre-judicial environmental enforcement concerning permits and their use will become more organized [6]. Conversely, losses resulting from pollution and environmental harm typically happen as a result of law enforcement acting through the legal system (including criminal and civil penalties).

According to the principles of supervision and the imposition of administrative fines, the goal of administrative environmental law enforcement is to halt contamination of the environment right at its source. The agency authorized to provide environmental permits periodically supervises operations covered by permits in an effort to ensure compliance with licensing requirements. Articles 71–75 of the Law on Environmental Management and Protection serve as the broad legal foundation for supervision as a method of executing administrative environmental law in regulating (environmental) pollution in Indonesia. A number of supervisory authorities are listed in Article 74 (1) of the Environmental Management and Protection Law. These include conducting monitoring, requesting information, copying documents and/or taking necessary notes,

entering specific locations, taking pictures, recording audiovisual content, collecting samples, inspecting installations, equipment, and/or vehicles, and stopping specific infractions. Realizing that Indonesians will become environmentalists with attitudes and actions to protect and develop the environment, protect the interests of present and future generations, and maintain sustainability, the goal of implementing environmental protection and management is to create harmony, harmony, and balance between humans and the environment. environmental function, which includes regulating the prudent use of resources and safeguarding the Republic of Indonesia's Unitary State from the effects of enterprises and/or activities conducted outside its borders that pollute the environment or destroy it.

In order to accomplish the goals of environmental management by preventing and controlling pollution, it is imperative to implement a suitable legal strategy for resolving environmental disputes, fully utilizing Environmental Law Number 32 of 2009. Government representatives must be involved in and knowledgeable about the application and enforcement of environmental law as a functional law in order to support the execution of these regulations. In compliance with Law Number 32 of 2009 concerning Environmental Protection and Management, this relates to harmonious, harmonious, and balanced environmental management to achieve sustainable development from an environmental standpoint. Law Number 32 governs measures to prevent environmental damage and manage the environment sustainably in addition to fostering wealth and balance. Durable environmental enforcement initiatives will offer a strong basis for advancements in the domains of economics, politics, society, culture, defense, and security. Three areas of environmental law enforcement are relevant to controlling environmental pollution: criminal environmental law enforcement through legal processes, administrative environmental law enforcement by government officials, and civil environmental law enforcement "environmental dispute resolution" through litigation and non-litigation methods [7]. The capabilities of law enforcement officials and the observance of laws and regulations by the public are strongly linked to environmental law enforcement. In addition to judges, police, prosecutors, and attorneys, environmental enforcement officers also include individuals and entities that are authorized to grant permits. Litigation-based settlement of environmental disputes pertaining to environmental pollution management is regarded as the last resort; out-of-court resolution of cases is given precedence.

"Nullum delictum nulla poena sine praevia lege poenale," or the "principle of legality," is the basis for Article 1 of the Criminal Code when it comes to criminal sanctions, which determine the punishment for an act that pollutes or destroys the environment. According to this idea, where there is a governing regulation, criminal law can be applied. Articles 97 to 120 of the environmental protection regulations establish "criminal provisions," although the regulations do not define "environmental crimes" ("milieudelicten"). "Behavior that intentionally or through negligence causes environmental pollution" is the definition of the illegal conduct of environmental pollution, to put it briefly. The goal of punishing environmental polluters is to offer legal protection for the standard of the social environment while also responding to environmental infractions. To properly impose punishment, one must carefully evaluate the various formulations of criminal sanctions. Criminal law principles state that there are *Actori in*

cumbit probation / *Actori incumbit onus probandi*, which means that the one making the argument has to provide evidence for it. Then there is the *Actore non probante, reus absolvitur* principle, which stipulates that the suspect shall be freed if the case is not proven. Individuals or legal entities may be held criminally liable for environmental offenses. Criminal penalties, which are typically of an individual or personal nature, may also be imposed on organizations that violate the law by causing pollution in the environment. When environmental pollution and destruction occur, people will be harmed, either as individuals, as groups, or as nations. These people are the victims of pollution and destruction. As a result, it can be concluded that in order to apply criminal law to situations involving environmental harm, it is necessary to provide concrete evidence that the conduct in question violates the statutory rules. Penalties for criminal offenses can include jail time, fines, orders to clean up contaminated or damaged areas, closing of commercial buildings, and media statements that harm the reputation of the offending business [8]. This serves as the “ultimum remedium” or “ultimum ratio principle” in the application of criminal law, meaning that it should be used as a last resort when dealing with environmental concerns.

Article 1365 of the Civil Code governs civil sanctions, which are defined as acts against the law (*onrechtmatige daad*). An act is deemed invalid if it satisfies four requirements: it must be against the law (*onrechtmatig*), it must cause harm, it must be wrong, and there must be a causal connection between the behavior and the losses incurred. It cannot be deemed an illegal act if any of the aforementioned requirements are not met. Lawsuits are the foundation of civil enforcement of environmental legislation; if the courts are used for conflict settlement, a civil lawsuit is filed with the district court. Chapter XIII, Articles 84 through 93, of the environmental protection regulations regulate the process of enforcing environmental law through civil procedures. The civil issues mentioned in these articles include environmental dispute resolution that, depending on the parties' voluntary decision, can be pursued in court (litigation) or out of court (non-litigation). The parties to the dispute are meant to have their civil rights protected by these provisions. Through out-of-court dispute resolution, parties can agree on the type and amount of compensation, corrective measures for damage or pollution, specific steps to guarantee that damage or pollution won't happen again, and ways to avoid having a negative environmental impact. Environmental conflicts can be settled out-of-court with the use of neutral third party agencies. This type of dispute settlement is called Alternative Dispute settlement (ADR). Industrialists in Indonesia now frequently employ alternative dispute resolution (ADR) mechanisms, such as arbitration, mediation, negotiation, and conciliation, to settle environmental problems. This is particularly true of cooperation agreements between investors and the community in the event of environmental damage. The process of working to uphold or implement genuine legal norms as standards for conduct in traffic or legal interactions in social and political life is known as law enforcement.

A collection of administrative legal tools known as administrative sanctions give mandates and/or directives to rescind state administrative judgments that arise from actions that do not follow statutory protection-related requirements. Administrative sanctions are applied repressively or sternly in an attempt to enforce environmental laws and regulations, but they are preventive in nature and are carried out through supervision and

licensing tools. Articles 76 to 83 of the Environmental Protection Law, which govern four categories of administrative sanctions—written warnings, government coercion, freezing of environmental permits, and revocation of environmental permits—are the primary legal foundation for administrative sanctions in the area of preventing and controlling environmental pollution. Take decisive action against companies that break environmental protection laws and emission quality regulations. If the offender violates the terms of the environmental permit, the penalties they face cannot be less than the financial gain they stand to gain. We discovered that the organizations authorized to provide environmental permits impose a variety of administrative sanctions, including warnings, summonses, confiscations, and punishments. Government-mandated sanctions, like any court resolution of environmental issues in general, are tied to criminal and civil sanctions. After imposing fines and criminal penalties, license revocation sanctions are the last resort for promoting adherence to licensing requirements or statutory rules. One benefit of using administrative environmental law instruments in environmental law enforcement over criminal and civil law instruments is that it can be more cost-effective from an accounting standpoint because administrative law enforcement is funded by routine field supervision and laboratory testing, which is less expensive than gathering evidence, conducting field investigations, and hiring expert witnesses to demonstrate elements of causality (cause and effect) in criminal and civil cases. The first and most important step in obtaining regulatory compliance is the enforcement of environmental legislation through administrative punishment. It is referred to as the first stage because, if environmental administrative law instruments were appropriately administered and enforced, environmental cases would not really arise. Therefore, it can be said that the environmental protection regulations outline three legal aspects—administrative law, civil law, and criminal law—that provide insight into Indonesia's environmental law enforcement system. Where each area of law enforcement differs from the others in terms of law enforcement.

3.2 Legal Principles in Environmental Management

The concentration of exhaust gases (CO₂, CH₄, N₂O, HFC, PFC, SF₆) released into the atmosphere rises as a result of industrial operations linked to the energy system. This thinning of the ozone layer results in the greenhouse effect (GHG). There is little doubt that rising greenhouse gas concentrations contribute to rising global temperatures, which can have an impact on human health. As a result, Indonesia has authority over biodiversity and natural resources and is accountable for managing environmental protection. According to Article 2 Letter A of the legislation governing environmental management and protection, state responsibility serves as the foundation for both environmental management and protection. Whereas the state's obligation manifests itself as a guarantee that the use of natural resources will maximize benefits for the welfare and standard of living of present and future generations, the state also protects citizens' rights to a clean and healthy environment and forbids actions that harm the environment or cause pollution as a result of the use of natural resources. Numerous initiatives have been undertaken to mitigate the effects of climate change and global warming, involving international agreements as well as national

collaboration. A summit of nations took place in Paris from November 30 to December 12, 2015. The nations' parties had decided to adopt a number of decisions during this summit. Adoption of the Paris Climate Agreement as a new tool to keep global average temperatures from rising much above 2°C above pre-industrial levels and to keep up the effort to keep temperatures from rising above 1.5°C above pre-industrial levels, accounting for national differences as stated in the Nationally Determined Contribution (NDC), a document that outlines mitigation actions or plans to lower each nation's GHG emissions. Indonesia, a developing nation with substantial industrial development, must decide whether to ratify the Paris Climate Agreement. As pledged in Indonesia's Nationally Determined Contribution (NDC) language, Indonesia must bear the direct repercussions of ratifying the Paris Climate Agreement, particularly in the industrial and energy sectors, in order to lower its level of greenhouse gas (GHG) emissions. In terms of state accountability, Indonesia is in charge of licensing governance, and licensing in the natural resources industry offers significant incentives to exploitation. The permit holder can mobilize their financial resources to engage in dirty politics that justifies any means thanks to the substantial revenues. In addition to the notion of state responsibility, Indonesia's environmental management and protection legislation contains a number of other principles, such:

- a. According to the principles of sustainability and preservation, everyone has duties and responsibilities to one another as well as to future generations. They should work to maintain the ecosystem's carrying capacity and enhance the quality of the surrounding area.
- b. Harmony and balance: When using the environment, consideration must be given to a number of factors, including economic, social, and cultural interests as well as the preservation and protection of ecosystems.
- c. By merging different parts or maximizing the effects of numerous connected components, the principles of integration, environmental protection, and management are implemented.
- d. The benefit principle, which states that all initiatives and/or development projects should be tailored to the environment's and natural resources' potential in order to enhance human dignity and community welfare while respecting the environment.
- e. The precautionary principle states that delaying actions to reduce or eliminate risks of environmental pollution and/or harm is not acceptable when there is uncertainty about the effects of a company or activity due to a lack of scientific or technological understanding.
- f. The fairness principle, which states that equitable justice for all citizens, regardless of geography, gender, or generation, must be reflected in environmental management and protection.
- g. The ecoregion principle, which states that features of ecosystems, natural resources, geographic circumstances, local community culture, and local wisdom must all be included in environmental management and conservation.
- h. The principle of biodiversity, which states that integrated efforts to maintain the existence, diversity, and sustainability of biological natural resources—vegetable and animal resources, which together with the surrounding non-biological

elements form an ecosystem—must be given careful consideration in environmental protection and management.

- i. The polluter pays principle, which states that anyone whose operations result in environmental harm or pollution must pay for the necessary repairs to the environment.
- j. The participatory concept, which states that all members of society are encouraged to actively participate, both directly and indirectly, in the process of making decisions and carrying out environmental management and preservation.
- k. The local wisdom principle, which states that we should consider the admirable ideals ingrained in the community's way of life when safeguarding and regulating the environment.
- l. Participation, transparency, accountability, efficiency, and fairness are ingrained in the principles of good governance, which include environmental preservation and management.
- m. The concept of regional autonomy, according to which, within the boundaries of the Unitary State of the Republic of Indonesia, the Government and regional governments regulate and manage government affairs themselves in the areas of environmental protection and management while taking into consideration regional specificities and diversity

The state serves as the focal point and point of reference in the application of the notion of state responsibility. Ensuring human safety, health, and life is one of the goals of putting environmental protection and management into practice. If the federal government, local governments, and all individuals work together to execute the concept of state responsibility, environmental preservation and management will be successful. According to the participation principle outlined in article 70 of the environmental management and protection law, the community has the same and most possibilities to actively participate in environmental protection and management. The community can play a part in social supervision, offer recommendations, transmit information, and/or prepare reports. Increased independence, community empowerment, partnerships, development of community capabilities and pioneering, development of community responsiveness to carry out social supervision, development and maintenance of local culture and wisdom in the context of maintaining environmental functions are all goals of this.

As part of its implementation, the state will take a number of actions to safeguard and manage the environment, one of which is to use monitoring and licensing tools to their fullest potential in order to reduce environmental impacts through preventive measures. Effective, dependable, and consistent law enforcement measures must be used to lessen environmental contamination damage after it has already occurred. In order to ensure that illegal acts, omissions, or non-compliance are stopped or returned to the state before the unlawful activities occur, administrative law is employed to resolve environmental problems. Consequently, the focus of criminal punishment is on people, whereas the focus of administrative sanctions is on the activities. In addition, the penalties imposed by criminal law target both the guilty as well as those who may commit similar offenses in the future. Since the sole goal of law enforcement is to get compensation for victims of environmental polluters or destroyers, civil law

enforcement is the second most significant area of law enforcement activity after administrative law enforcement. Civil law enforcement initiatives, on the other hand, are legal initiatives that lessen the state's obligation. In other words, since law enforcement is conducted here by the people, the people automatically bear the costs associated with it, the state does not need to spend money on it [9]. Since the goal of law enforcement in this area is to punish offenders of environmental pollution and/or destruction with jail terms or penalties, criminal enforcement is considered a last choice [10].

4. Conclusion

Human activity causes global warming, and one such activity is the industrial sector. Raising the planet's temperature also has detrimental effects on people's health, including increased cardiac strain, asthma attacks, skin cancer, and other conditions. Thus, the survival of each and every one of the state's residents is the state's responsibility. In order to fulfill its obligation to preserve the public's health, the state ratified the Paris Climate Agreement and established Law Number 32 of 2009, which deals with environmental management and protection. This rule imposes restrictions and penalties, which might take the form of civil, administrative, or criminal penalties. For instance, the state has the authority to grant licenses to businesses or other parties whose operations have the potential to harm the environment; in other words, these are unlawful actions

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