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Research Article

The Principle Of Preventing Environmental Damage -Legal Study-

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ABSTRACT

This study aims to elucidate various aspects of the principle of preventing environmental damage and to determine how it can be applied in developmental projects and activities in a manner that allows for development while avoiding environmental harm. The study employs a descriptive-analytical methodology, complemented by an inductive approach in presenting the research problem.
The ambiguity of the prevention principle is highlighted due to its significant overlap with the precautionary principle and the lack of genuine intent, especially in the developing world, to apply it amidst the severe spread of pollution, particularly in waste management and the reduction of greenhouse gas emissions. This necessitates increased efforts and encouragement for its widespread application.

Keywords: Prevention Principle, Environmental Damage, Pollution, Environmental Protection.

Introduction:

Given the novelty of international environmental law and sustainable development as a branch of public international law, environmental protection has oscillated between references to international instruments related to human rights and those linked to environmental issues. It has found greater protection within the context of sustainable development, especially since achieving development is crucial for the establishment and continuity of states, and is an effective indicator of their strength and effectiveness.
The environment has benefited from traditional international law principles such as the principle of international cooperation and solidarity, the principle of good neighborliness, the principle of non-abuse of rights, and the principle of non-harm to others. These principles generally govern international relations and specifically regulate environmental protection to avoid harming other states' environments.
However, traditional principles were insufficient to actualize effective environmental protection within the framework of sustainable development, prompting researchers and those interested in this field to develop principles that serve as a common denominator for environmental protection and sustainable development. These principles outline the standards to be observed within and between states, considering that environmental damage is widespread and long-lasting, extending beyond the source state.
Among the legal principles for environmental protection within sustainable development is the principle of preventing environmental damage, which warrants detailed study and research, starting from the core question: What is the content of the principle of preventing environmental damage?
This study aims to elucidate various aspects of the principle of preventing environmental damage and to determine how it can be applied in developmental projects and activities in a manner that allows for development while avoiding environmental harm.
The study necessitates employing a descriptive methodology, focusing on the conceptual aspect of the principle of preventing environmental damage, and an analytical methodology, demonstrated through a comprehensive review of international, regional, and national texts dedicated to enshrining the preventive principle, as well as presenting models of environmental cases in this regard and applications of the preventive principle. The inductive approach is also used in examining the texts dedicated to enshrining the principle, divided into three main sections:

1. The Cognitive Framework of the Prevention Principle
2. The Legal Enshrinement of the Prevention Principle
3. The Scope of Application of the Prevention Principle

The Cognitive Framework of the Prevention Principle

The study of the prevention principle, as one of the most significant newly established principles in the field of environmental protection and sustainable development, necessitates an initial exploration of its concept (First) and an emphasis on its dimensions (Second).

First: The Concept of the Prevention Principle

The concept of the prevention principle is often seen as imprecise. However, an exploration of various definitions can provide clarity. Linguistically, the term "prevention" is derived from the Arabic root "وقى" (waqā), meaning to avert or guard against, signifying protection and maintenance (Definition of Prevention, Al-Ma'ani Dictionary).

In its general sense, prevention encompasses any measure aimed at averting danger or violations. In the context of environmental protection, prevention seeks to avoid damage that degrades environmental quality, thereby avoiding the costs of remediation or repair. This aligns with the principle that "prevention is better than cure" (Al-Azouzi, p. 3), a standpoint also adopted by Algerian legislation, as will be discussed subsequently.

From a legal scholarship perspective, Professor Barbuta, the rapporteur of the International Law Commission responsible for drafting an international convention on state responsibility for harmful outcomes from acts not prohibited by international law, defines the prevention principle as: "Measures to prevent the occurrence of an incident or to contain and minimize its harmful effects after it occurs, having a preventive nature" (Bousraj, 2021-2022, p. 24). This indicates that the prevention principle functions both proactively and reactively in monitoring and controlling the impact of projects before and after their implementation.

Legally, the prevention principle can be defined as the adoption of necessary measures to prevent foreseeable damage or to minimize its effects as much as possible. It is employed when the risk is known and undisputed.

The importance of the prevention principle manifests in several aspects. Ecologically, it is the best means to ensure the optimal protection of the characteristics of the ecosystem, becoming more crucial when facing irreversible damage. Economically, the costs of treatment often exceed the costs of prevention (Principle 9, Nairobi Declaration). Prevention is associated with foreseeable damage based on science and knowledge that allow the identification of risks posed by any activity, as stated in paragraph 8 of the preamble to the Convention on Biological Diversity of 1992 (Bousraj, 2021-2022).

Second: Dimensions of the Prevention Principle

Three dimensions can be distinguished in this context:

1. **Temporal Dimension**: This dimension relates to the timing of the intervention. If the intervention occurs at the moment the problem arises, it aims to stop the spread of damage. If the intervention takes place after the problem has occurred, it is remedial, with an effort to restore the situation to its original state.
2. **Functional Dimension**: This dimension pertains to the intensity of the intervention, which can manifest in three forms:

- **Deterrent Prevention**: This involves taking repressive measures against prohibited anomalies and is of an absolute mandatory nature, such as the withdrawal of chemical substances from the market (e.g., chlorofluorocarbons under the Montreal Protocol of 1987).
- **Passive Prevention**: This takes the form of warnings, such as informing consumers about the effects of a particular product.
- **Active Prevention**: This is the most ambiguous form, involving preemptive measures along with warnings. Examples include licensing establishments with oversight and regulation, such as permitting the discharge of pollutants provided they do not exceed the required limit.

3. **Structural Dimension**: This dimension revolves around the scope of intervention. In the field of environmental protection, it is essential to transition from the local to the global level to mitigate the risks of projects. This point brings the prevention principle closer to the principle of integration (Al-Azouzi, pp. 2-3).

Second Section: Legal Enshrinement of the Prevention Principle

Asserting that prevention is a legal principle contributing to environmental protection from various ecological harms necessitates an examination of efforts made to achieve its legal recognition and enshrinement in international instruments (First) and in domestic legislation (Second).

First: International Level

International jurisprudence was the first to innovate the prevention principle. It first appeared in the Trail Smelter case between Canada and the United States in 1941, where the arbitration decision acknowledged the existence of a rule in international law obliging states to prevent and avoid transboundary harm, as stipulated in the Stockholm and Rio Declarations (Warakh & Al-Taher, December 2023, p. 240). This principle evolved into the duty of due diligence as a minimum standard of care and extends to the maximum level of coordinating and implementing optimal environmental policies to halt environmental degradation.

Subsequently, the United States Supreme Court ruled in the case of Georgia v. Tennessee Copper Co., involving sulfuric acid gas emissions, that such gas is harmful and emphasized the necessity of preventing air and forest pollution in the mountains (El-Mal, 2013, p. 330). This ruling mandated that the copper company take necessary measures to prevent air and forest pollution.

Furthermore, the prevention principle was referenced in the advisory opinion of the International Court of Justice on the legality of the threat or use of nuclear weapons in the case between France and New Zealand, where the court affirmed that the environment is not abstract but a living space for all (Ouarkh & Taher, December 2023, p 245). Additionally, in the 1977 case between Hungary and Czechoslovakia concerning the construction of a dam for electricity generation on the Danube River, the International Court of Justice upheld the prevention principle due to the irreparable nature of environmental damage.

Recently, the principle of due diligence was highlighted in a case between Germany and Switzerland, where Switzerland failed to agree with a German pharmaceutical company on safety measures, leading to pollution of the Rhine River. The Swiss government admitted it had not exercised due diligence to prevent Rhine River pollution (El-Mal, 2013, p. 331), due to the lack of a preventive regulatory framework for the pharmaceutical industry. This demonstrated Switzerland's failure to apply the preventive principle in regulating the pharmaceutical industry to mitigate environmental damage.

The International Committee of the Red 'ross (ICRC), in its 1993 report to the United Nations General Assembly concerning environmental protection during armed conflicts, discussed the prevention principle as a recently established concept aimed at anticipating and preventing environmental damage before it occurs. The ICRC emphasized that lack of scientific knowledge cannot be an excuse for delaying measures to prevent severe or irreparable environmental damage (Al-Jassani, p. 567).

Moreover, international treaty law has incorporated this principle in several instruments, notably the 1982 United Nations Convention on the Law of the Sea (UNCLOS), widely recognized by scholars as the first explicit text addressing the prevention principle. It mandates all member states to take preventive measures to avoid marine pollution from hazardous waste and radioactive materials (Ouarkh & Taher, December 2023, p. 242), as stipulated in Article 194.

The 1987 Montreal Protocol, in its preamble, explicitly called for the application of the prevention principle as the foundation for protecting the ozone layer. It stressed the importance of relying on scientific knowledge when formulating measures to protect the ozone layer and acknowledged the preventive measures already implemented at national and regional levels to reduce emissions of certain chlorofluorocarbons (Montreal Protocol on Substances that Deplete the Ozone Layer, 1987).

Second: Legal Enshrinement of the Prevention Principle

The assertion that prevention is a legal principle contributing to environmental protection from various ecological harms necessitates an examination of efforts made to achieve its legal recognition and enshrinement in international instruments (First) and in domestic legislation (Second).

The Basel Convention of 1989, in its Article 4, called for the control of the transboundary movement and disposal of hazardous wastes. The prohibition of activities likely to harm the environment and human health, as stipulated in the convention, is a clear application of the prevention principle. This includes banning the export and import of hazardous wastes, reducing their generation, and ensuring their environmentally sound management, as well as taking all necessary measures to prevent pollution by hazardous and other wastes (Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989).

The primary objective of the 1992 Convention on Biological Diversity is to encourage various measures that allow for a sustainable future for biodiversity. It aims to embody the prevention principle against any threat or damage to the existence and sustainability of biodiversity. Article 14 of the convention mandates actions to assess the environmental impact of projects likely to adversely affect biodiversity (paragraph a), with immediate intervention to reverse, halt, or minimize potential threats (paragraphs b, c, d) (Convention on Biological Diversity, 1992). Therefore, it can be said that studying the environmental impact of projects is one of the key mechanisms for applying the prevention principle, as it is a proactive measure determining the actions to be taken by project proponents to prevent, mitigate, and combat pollution if it occurs. The environmental impact assessments required by Article 14 of the aforementioned convention thus act as a call for adopting environmental impact studies to prevent environmental damage.

Moreover, the 1992 Framework Convention on Climate Change explicitly stated the prevention principle in Article 3(3), placing on the parties the duty to take precautionary measures to anticipate, prevent, or

minimize the causes of climate change to mitigate its adverse effects (United Nations Framework Convention on Climate Change, 1992, p 5).

In the same vein, soft law has played a significant role in the emergence and formation of environmental protection and sustainable development law, particularly concerning its principles. The 1972 Stockholm Declaration enshrined the prevention principle in its Principle 21, which states: "In accordance with the Charter of the United Nations and the principles of international law, states have the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction" (Stockholm Declaration on the Human Environment, 1972). The obligation to ensure that activities under national jurisdiction do not harm other states or areas beyond national jurisdiction is a call to apply the prevention principle to prevent potential harm to those states or areas. Thus, the Stockholm Conference did not overlook the necessity of applying the prevention principle in conducting various activities to ensure they do not harm others.

The prevention principle also received attention in the 1982 Nairobi Declaration, which stated in its Clause 9 that preventing environmental damage is better than the burdensome repair of actual damage. It emphasized that preventive activities should include sound planning of all activities that could potentially harm the environment (Nairobi Declaration, 1982).

In addition, Article 11 of the World Charter for Nature of 1982 serves as a tool for establishing the precautionary principle. It mandates controlling activities that may impact nature and utilizing the best available technologies to minimize risks to nature. This is achieved, according to the article, by avoiding projects likely to harm the environment or by conducting environmental impact assessments prior to any operation or project that threatens nature (World Charter for Nature, 1982). This confirms that environmental impact assessments are among the most prominent modern mechanisms for applying the prevention principle to environmental damage, as previously mentioned.

The Rio Declaration of 1992 followed the example of the Stockholm Declaration through its Principle 2, which emphasizes ensuring that developmental activities within a particular area do not cause damage to other areas. This is a viable tool for applying the prevention principle, which requires preventing harm to others from national projects. Additionally, Principle 15 explicitly calls for a precautionary approach to environmental protection (Rio Declaration on Environment and Development, 1992, pp. 3, 5).

Furthermore, the Maastricht Treaty of the European Union, in Article R130, states that the best policy for environmental protection is prevention at the source, asserting that preventing environmental damage is better than a prolonged response to its impacts. This is reinforced by European Directive CE/2004/35, which emphasizes that when there is an imminent threat of damage, even if the damage has not yet occurred, operators must take all immediate necessary measures to prevent it (Warakh & Al-Taher, December 2023, p. 243), underscoring the critical importance of applying the prevention principle.

Second: At the National Level

Returning to Algerian legislation, Law No. 03/10 on Environmental Protection in the Context of Sustainable Development addresses a range of environmental protection principles in its Article 3. Specifically, it includes the prevention principle in paragraph five of Article 3, stating: “The principle of preventive activity and the correction of environmental damage at the source, prioritizing the use of the best available techniques at an economically acceptable cost, and obliging any person who may cause significant environmental damage to consider the interests of others before acting” (Article 5 of Law No. 03/10 dated July 19, 2003, on Environmental Protection in the Context of Sustainable Development, p. 5).

The Algerian legislator has focused on the means that can be adopted to implement the prevention principle, in contrast to French law, which addresses it in relation to the objective sought from the application of this principle (Hamidani, p. 3). Article L200-1, paragraph 3, of the French Rural Code links the principle of prevention with the correction of environmental damage, stating: “The principle of preventive action and correction of environmental damage, with priority given to its source, using the best available techniques at an economically acceptable cost" (Le Code rural français, Version en vigueur du 01/01/1997 au 21/09/2000).

Third Section: Scope of Application of the Precautionary Principle

Given the repeated emphasis and insistence in various instruments and legislations on the necessity of applying the precautionary principle, it is crucial to understand the conditions for its application (first) as well as its key practical applications (second).

First: Techniques for Applying the Precautionary Principle

Referring to the aforementioned international and national legal texts, we can derive the techniques for applying the precautionary principle to environmental damages potentially caused by developmental projects. These techniques include:

1. **Identifying the Damages to be Avoided**: Preventing environmental degradation primarily involves avoiding foreseeable damages. Since it is impossible to prevent all environmental damages caused by human activity, public authorities should grant permits to continue environmentally harmful activities while adhering to maximum permissible pollution limits. However, this technique has been criticized on the grounds that permits essentially authorize environmental destruction and have proven inadequate in preventing ongoing environmental degradation.
2. **Ensuring the Reasonableness of Preventive Measures' Costs**: Public authorities evaluate the cost of preventive measures before implementing them and compare it to the potential damage costs. This traditional analysis often fails to assign real value to the threatened part of the environment, especially given the difficulty of materially assessing environmental damages, particularly those affecting the common heritage of humanity.
3. **Utilizing the Best Available Technology**: International agreements and environmental legislations link preventive activities to the use of the best available technology. This approach is endorsed by the 1992 Helsinki Convention on Watercourses in Article 13(1), as well as by the 1995 French Barnier Act and the 2003 Algerian Law No. 03/10 on Environmental Protection in the Context of Sustainable Development. To prevent the collapse of industrial facilities, environmental legislations advocate for the use of the best available technology at an economically acceptable cost (El Mal, 2013, pp. 331, 334), which is a more acceptable and easier-to-implement technique.

Second: Practical Applications

The precautionary principle finds multiple areas for application, enhancing production and driving development in both developed and developing countries. The most notable fields of application include:

- Waste Management:

Waste management is a prime field for the application of the precautionary principle, particularly as it necessitates reducing pollution and waste at the source, promoting reuse and recycling, and ensuring waste treatment and disposal. Notably, most American paper mills have adopted a waste treatment system costing between $3 million and $4 million per mill, with annual operating expenses estimated at $500,000, yielding savings of about $1 million annually. Consequently, waste treatment projects generate $500,000 annually, helping to recoup the initial costs within approximately six to eight years, after which the mill saves around $500,000 annually (El Mal, 2013, p. 314).
Additionally, protecting the ozone layer from pollution and chemicals, along with addressing global warming and climate change, are crucial fields for the application of the precautionary principle. This focus began with the 1985 Vienna Convention for the Protection of the Ozone Layer and its 1987 Montreal Protocol, the only globally ratified treaty. The treaty's Scientific Assessment Panel, at its 2018 annual meeting in Quito, reported, "For the first time, there are indications that the ozone hole in the Antarctic has diminished in both size and depth since 2000," predicting a gradual return to safe levels by the 2060s, thanks to the mandatory reduction of chlorofluorocarbons (CFCs) and related ozone-depleting chemicals.
Furthermore, the assessment highlighted that the Kigali Amendment's phasedown of hydrofluorocarbons (HFCs) will significantly contribute to combating global warming, potentially avoiding up to 0.5°C of warming. The 2016 Kigali Amendment's implementation could prevent up to 0.4°C of warming (Institute for Governance & Sustainable Development, 2018).
In this context, it is noteworthy that following the Bhopal disaster on December 2, 1984, which killed thousands of residents in Bhopal and surrounding areas due to the release of approximately 30 tons of lethal methyl isocyanate gas from a pesticide plant owned by Union Carbide Corporation (Bhopal Disaster of 1984... One of the Worst Industrial Disasters in Human History, 2022), Dow Chemical announced a program to recycle chemical waste for numerous global chemical companies, including the American company DuPont, the world's largest producer of CFCs (chlorofluorocarbons). DuPont achieved significant commercial profits from the alternative materials it developed, leading to a 2002 agreement with the agricultural giant Minnesota to produce biodegradable plastic bags. In 1993, Germany developed the green refrigerator technology, which uses hydrocarbons instead of CFCs, significantly advancing the market for household appliances (El Mal, 2013, p. 315).

Conclusion:

The precautionary principle is fundamentally aimed at preventing environmental harm. When avoidance is not feasible, the principle advocates for addressing or mitigating such harm as soon as it occurs. This principle has been addressed by international and regional instruments, as well as domestic legislations, due to its crucial role in safeguarding the environment from widespread and long-term ecological damage, thus contributing to sustainable development that incorporates environmental considerations.

The precautionary principle is applied in scenarios where scientific certainty and information indicate the harmful effects of certain activities. This approach aids in combating pollution and stopping environmental damage at its source or from its inception, as previously noted.

Through the analysis of legal texts enshrining the precautionary principle and the examination of related case studies, alongside the presentation of key application areas, the following conclusions have been reached:

1. The principle's concept remains vague.
2. There is significant overlap between the concepts of precaution and prevention.
3. The widespread occurrence of pollution and various pollutants, especially in developing countries, reflects a lack of genuine commitment to applying the principle. This is particularly evident in waste management, including hazardous waste. The reality shows frequent occurrences of hazardous waste being imported from industrialized countries for minimal amounts without proper treatment or environmentally sound disposal, as repeatedly observed in Africa.

Based on the above findings, the following recommendations are proposed:

1. Increased efforts by experts are needed to resolve the ambiguity between precaution and prevention.
2. Broad application of the precautionary principle should be encouraged by providing incentives to investors and project owners who demonstrate effective implementation of the principle. This is particularly relevant in the areas of comprehensive waste management, protection of the ozone layer from ozone-depleting substances, and reduction of greenhouse gas emissions that contribute to climate change.

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