



THE POLLUTER PAYS PRINCIPLE AS A BASIS FOR INTERNATIONAL LIABILITY FOR ENVIRONMENTAL DAMAGE

CHERIF OUAKOUAK

ouakouak-cherif@univ-eloued.dz

University of El-Oued

Received: 17/12/2024 Accepted: 02/02/2025 Published: 30/03/2025

Introduction

There has been considerable scholarly debate regarding the meaning of environmental damageⁱ, with the divergence often stemming from its conflation with the concept of environmental pollutionⁱⁱ. In reality, pollution is a narrower concept than environmental damage, yet it represents its most serious form.

As a result, many studies have focused on environmental pollution as if it were the sole form of harm affecting the environment. National legislations, for the most part, have not explicitly defined environmental damage; instead, they have concentrated on defining pollution and the harm it causes to the environment. Therefore, in this context, we will rely on the definitions provided by legal scholars and international conventions regarding environmental damageⁱⁱⁱ.

The jurist Michel Despax defines it as: "Damage that constitutes an infringement upon the components of the ecological system, which does not, due to its indirect and diffuse nature, give rise to the right to compensation." Meanwhile, jurist R. Drago considers the environment as the source of damage rather than the victim, defining environmental damage as: "Damage caused to individuals or property by the surrounding environment in which they live." Jurist Michel Prieur, on the other hand, emphasizes the need to distinguish between pollution-related damages affecting individuals and property, and damages that affect the natural environment itself^{iv}.

Dr. Ashraf Arafat Abu Hijazah's definition of environmental damage is considered one of the most comprehensive. He defines it as damage that simultaneously encompasses pollution-related harm affecting individuals, property, activities^v, or interests, as well as harm inflicted directly upon the environment itself—manifested through the collapse and gradual degradation of the natural balance among its constituent elements over time.

The **"polluter pays" principle** is regarded as one of the most internationally recognized principles aimed at achieving sustainable development in its environmental dimension, due to its connection to the economic aspects of polluting activities. It has been firmly established in numerous legal texts and has evolved into a legally recognized international principle^{vi}. Its implementation is now considered essential to curbing pollution and remedying environmental damage^{vii}.

This study will address the concept of the **polluter pays principle** (*Section One*), followed by its development at the international level (*Section Two*).

Section One: Defining the "Polluter Pays" Principle

Legal and economic scholarship both contributed to the emergence of the **"polluter pays" principle**, which was derived from the **theory of externalities** (*la théorie des externalités*), formulated by the jurist **Arthur Pigou**. This theory argues that the external costs of production^{viii} processes must be taken into account. Therefore, to clearly outline the contours of this principle, it is necessary to first clarify its definition (*Part One*), and then examine the areas it encompasses (*Part Two*).

Subsection One: The Concept of the Principle

The purpose of the **"polluter pays" principle** is to ensure that the polluter bears the full cost of implementing measures to prevent and combat the escalation of pollution^{ix}.



First - Definition of the Principle

This principle was first introduced in 1972^x by the Organisation for Economic Co-operation and Development (OECD) as a guideline for international environmental policy. The Council Recommendation No. C(72)/128, OCDE, 1972 stated:

"The polluter should bear the expenses related to the measures undertaken by public authorities to maintain an environment of an acceptable quality. These measures should be reflected in the cost of goods and services that are the source of pollution resulting from production and consumption activities^{xi}."

International legal scholarship played a significant role in the emergence of this principle by framing it in both economic and political terms, ultimately leading to its legal embodiment. Economic jurists consider the root cause of environmental degradation to be the free use of environmental resources^{xii}. Accordingly, they define the polluter pays principle in economic terms as follows:

"Goods and services offered in the market should reflect the cost of the materials used, including environmental resources. The discharge of pollutants into air, water, or soil constitutes a form of using these resources as factors of production, and failure to pay for their use distorts the true cost of these factors of production."

The jurist *Jean Prieur* believes that: "The principle of the polluter's liability will, over time, assume a compulsory and binding legal status." Meanwhile, *João Clemente Baena Soares* defined it as "the most effective mechanism for distributing the costs of preventing and combating pollution^{xiii}. It can also be considered an economic principle comparable to the use of market economy laws to protect the environment, as it regulates the value of fees and taxes, allowing the implementation of a financial policy to combat pollution and reduce its effects. It is also related to a simple principle: that the operator of a hazardous activity causing environmental damage must bear the cost of remediation^{xiv}. The origin of this principle lies in the application of an economic rule aiming to include a tax within the price of a product or service that causes environmental harm, thereby contributing to pollution prevention expenses through the fee paid by the polluter, based on the requirements of justice^{xv}."

From a legal perspective, the Organisation for Economic Co-operation and Development (OECD) was the first body to adopt a definition of the polluter-pays principle in 1972, in Recommendation No. 128/72 dated May 26, 1972. It stated that the costs of pollution prevention and control, which were previously borne by public authorities, should instead be borne by the polluter^{xvi}. This principle was reaffirmed in the *Rio de Janeiro Declaration on Environment and Development* in 1992, under Principle 16, which recognizes that the polluter must bear the financial burdens resulting from pollution at the national level^{xvii}.

Meanwhile, the Algerian legislator defined the "polluter pays principle" as follows: "It is the principle whereby any person whose activity causes, or may cause, harm to the environment shall bear the costs of all measures for pollution prevention, mitigation, and the restoration of places and their environment to their original condition^{xviii}." Tunisian legislation also addressed this principle in the context of neighborhood disturbances, where the *Majallat al-Ahkam al-'Adliyya (M.A.A.)* stipulates the obligation to bear financial liability^{xix}. Similarly, the French legislator defined the principle in the *Barnier Law*, under which the polluter bears the costs arising from monitoring, reducing, and combating pollution^{xx}.

This principle also reinforces the concept of *risk theory* as a basis for international liability in determining compensation for damages caused by polluting activities^{xxi}. It is, therefore, a practical application of the principle "who benefits must also bear the burden" (*glory comes with burden*)^{xxii}. What is new in this principle is that it obliges the polluter responsible for environmentally harmful activities to bear all expenses and the costs of preventive and remedial measures decided by public



authorities **before** the occurrence of damage, in order to prevent that damage from exceeding certain limits or thresholds^{xxiii}.

Second: Importance and Characteristics of the Polluter Pays Principle

This principle is considered one of the most fundamental principles in environmental protection. It safeguards the environment by imposing fees, expenses, and costs on those responsible for pollution and environmental harm^{xxiv}. It is also regarded as an economic mechanism specifically aimed at protecting the environment from the damage caused by industrial and economic activities. Because it is economically based, the principle contributes to achieving sustainable development, and through it, the preservation of the environment is realized.

Furthermore, it serves as a modern objective basis for environmental liability, as it ensures compensation and redress for environmental harm beyond the traditional confines of damage and unlawful acts. Its application does not rely on identifying the direct party responsible for pollution or on the contributory factors of civil liability for pollution-related damages. Rather, it imposes financial burdens objectively on all activities likely to impact the environment^{xxv}.

The principle is characterized by a number of features, the most prominent of which is the view held by some legal scholars that it is a legal principle aligned with the concept of justice—embodied in the obligation placed on the party causing harm to bear the responsibility for compensating or remedying it^{xxvi}. This principle also functions as a tool of harmonization; its adoption helps unify international environmental policies and contributes to the standardization and development of international liability rules concerning environmental damage^{xxvii}.

It is also an economically oriented principle, as it places the responsibility for addressing pollution-related damage on the polluters themselves without transferring the cost of remediation to the end consumer^{xxviii}. Moreover, the principle is characterized by flexibility: it can be enforced through legislative means including criminal, civil, administrative, and even financial mechanisms, by imposing penalties on the polluter. It can also be enforced through systems like prior licensing of various activities and mandating environmental impact assessments, which require financial expenditures and technical expertise for proper evaluation^{xxix}.

Additionally, various types of environmental taxes can be imposed^{xxx}. The principle seeks to achieve two key objectives: (1) requiring the polluter to pay appropriate costs and compensation for environmental harm caused by their activities, and (2) providing individuals with financial incentives to modify their behavior and adopt environmentally friendly technologies in the course of their operations.

Subsection Two: Areas Covered by the Polluter Pays Principle

1. Cases of Pollution Resulting from the Use of Technology

Those engaged in modern technology cannot ignore the negative environmental impacts of their activities^{xxxi}. Whether through the production methods they adopt or the nature of the materials they use, they inevitably face harmful consequences for the environment. For instance, an aircraft manufacturing company, known for powerful engines, is well aware of the noise such aircraft will generate during operation. Similarly, the operator of an aluminum production plant is fully conscious of the harmful effects of the large volumes of vapor that accumulate in the air.

2. Inclusion of Pollution Caused by Accidents within the Principle

Industrial accidents were not initially considered among the liabilities borne by the owner of an industrial facility, since such accidents were deemed beyond the control of the manufacturer. However, pollution caused by accidents was later included under the polluter-pays principle by the Organisation for Economic Co-operation and Development (OECD), through its provision that the costs of preventive measures for pollution resulting from accidents should be borne by the polluter. This measure aims to reduce the burden on the public budget regarding the costs of pollution-related



accidents by shifting the responsibility to the facility owner, thereby encouraging operators to adopt the necessary measures and precautions to prevent such incidents^{xxxii}.

3. Expansion of the Principle to Include Unlawful Pollution and Residual Damages

This refers to cases where a polluter exceeds the legally permitted pollution threshold and causes harm to others. In such instances, the polluter becomes obligated to compensate the victims and to pay a financial penalty for having exceeded the allowed limit.

Section Two: The Development and Establishment of the Polluter Pays Principle^{xxxiii}

The process of evolving the polluter-pays principle from an economic concept into a legal one took time before it became a principle recognized in international treaty-based (Section One) and non-treaty-based^{xxxiv} (Section Two) practices, and eventually solidified in judicial applications (Section Three).

Subsection One: Development of the Principle in Treaty-Based International Practices

Practices derived from international treaties have increasingly moved toward establishing the polluter-pays principle as requiring compensation for damages, without the injured party needing to prove that the harmful activity breached a specific treaty or customary obligation. This is the essence of the polluter-pays principle^{xxxv}.

As a natural consequence of the international developments shaping environmental law, several key international milestones have witnessed the adoption and formal recognition of the polluter-pays principle—either explicitly or implicitly. Among the most notable of these are:

1. Under the Stockholm Declaration of 1972

The Stockholm Declaration marked a historic turning point by laying the foundation for a new environmental mindset^{xxxvi}—one that called for coexistence with nature, an end to the misuse of natural resources, and the improvement of human quality of life. This was embodied in the establishment of the United Nations Environment Programme (UNEP), which spearheads the UN's efforts to protect the global environment^{xxxvii}. It becomes evident that international treaty-based practices recognized the polluter-pays principle either as a guiding concept adopted by states in their national legislation, or as a binding principle considered one of the key general principles of international environmental law^{xxxviii}.

2. Development of the Principle in the Context of Climate Change

Scientific warnings regarding ozone layer depletion—primarily caused by the industrial misuse of substances like chlorofluorocarbons (CFCs)—received widespread attention. This concern led to the convening of the United Nations Conference on the Ozone Layer, which resulted in the Vienna Convention for the Protection of the Ozone Layer in 1985^{xxxix}. The convention recognized the responsibility of states in conducting lawful activities and later scientific and technological developments confirmed that such activities posed a serious risk to the ozone layer^{xl}.

Accordingly, states can be held liable and required to pay compensation based on the polluter-pays principle, even if the harmful activities were lawful and practiced at the time. Furthermore, the principle was adopted in the 1976 Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention), which was later amended in 1995^{xli}.

According to Article 2, paragraph 2 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, also known as the Helsinki Convention of 1992, the parties apply the polluter-pays principle, whereby the polluter bears the costs of measures to prevent, control, and reduce pollution.

Similarly, Article 2, paragraph 5 of the 1992 Paris Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) includes provisions applying the polluter-



pays principle, under which the costs of pollution prevention, control, and reduction measures are to be borne by the polluter.

Among the international agreements that have incorporated this principle are the 1995^{xlii} Pan-European Biological and Landscape Diversity Strategy and the 1996 Protocol to the London Convention on the Prevention of Marine Pollution by Dumping of Wastes, which states that, as a general rule, the polluter should bear the cost of pollution, as affirmed by the Commission on Sustainable Development on several occasions.

In 1997, the United Nations General Assembly held a special session to review the implementation of Agenda 21, during which it was noted that the environment continued to deteriorate. This session also led to the adoption of the well-known Kyoto Protocol on climate change^{xliii}.

At the dawn of the third millennium, world leaders and heads of government gathered in New York, resulting in the formulation of the Millennium Development Goals (MDGs). Goal 7 specifically aimed to ensure environmental sustainability. The Johannesburg Summit on Sustainable Development, held in South Africa in 2002, issued important resolutions that established numerous environmental principles. Among the most significant decisions of that summit were^{xliv}:

- The principle of environmental precaution as a key component of development,
- The shared responsibility of all in addressing environmental degradation,
- The principle that this responsibility is differentiated among states according to their respective levels of concern and capability,
- The necessity of adopting international cooperation for environmental protection,
- And the liability of polluting states to provide compensation, in accordance with the *polluter-pays principle*^{xlv}.

In this context, the United Nations issued the Bali Report in 2007, which warned that failure to control climate change would lead to regions of the world sinking into violence, conflict, and wars, and would result in the emergence and spread of environmental refugees.

Amid increasing environmental activism, UN climate change conferences continued. Relevant parties convened at the Cancún Summit in Mexico in 2010, followed by Durban, South Africa in 2011, the Doha Summit in Qatar in 2012, the Warsaw Summit in Poland in 2013, and the Lima Summit in Peru in 2014^{xlvi}. These efforts culminated in the landmark Paris Summit in 2015, where great expectations were placed on participating nations to address climate change through a legal framework with clearly defined rules and obligations^{xlvii}.

Third: The "Polluter Pays" Principle in the Field of Oil Pollution

In the field of environmental protection, several international agreements have been concluded to regulate civil liability for damage caused by marine oil pollution. Among these is the Civil Liability Convention for Oil Pollution Damage, signed in Brussels in 1969^{xlviii}. This convention was considered the first of its kind to regulate civil liability for damage resulting from marine oil ^{xlix}pollution. The maritime disaster caused by the oil tanker *Torrey Canyon*^l played a key role in prompting the International Maritime Organization (IMO) to convene an international conference to establish rules governing liability for oil pollution damage^{li}.

The aim of this convention is to provide appropriate compensation to individuals affected by pollution resulting from the leakage or burning of oil from ships, and to unify international rules and procedures related to liability and the provision of adequate compensation to victims. The convention defines the liability of shipowners for damage resulting from pollution and established an international fund



to compensate for pollution damage and cover cases that exceed the limits set by the liability convention^{lii}.

In the field of nuclear energy, several international practices have reinforced and affirmed the principle that the polluter bears the cost. These include:

- The Paris Convention on Third Party Liability in the Field of Nuclear Energy (1960)^{liii}
- The Vienna Convention on Civil Liability for Nuclear Damage (1963)^{liv}
- The Brussels Supplementary Convention (1972)^{lv} related to civil liability in the maritime transport of nuclear materials, complementing the Paris and Vienna Conventions.

These conventions aim to define civil liability for nuclear damage occurring during maritime transport of nuclear materials. They place civil liability on the operator of the nuclear installation and cover all damages affecting the means of transport or the installation itself^{lvi}.

Subsection Two: Evolution of the "Polluter Pays" Principle in Non-Contractual International Practices

First: In the Decisions of the Organisation for Economic Co-operation and Development (OECD)^{lvii}

The OECD had a pioneering role in announcing this principle through its issued recommendations. Among the most important are:

- Recommendation No. 72/128, concerning the Guiding Principles on the Economic Aspects of Environmental Policy.
- Recommendation No. 223/74, issued on 14 November 1974, which concerns the application of the principle^{lviii}.

It is noted that this principle was introduced in a general manner in relation to the guiding principles on the economic aspects of environmental policies in the countries of the Organisation for Economic Co-operation and Development (OECD). However, it was more specific when it came to its implementation. It placed the burden of prevention and pollution control costs on the private sector, especially in the context of international investment and trade.

The scope of the principle was later expanded in the 1989 declaration adopted by the OECD, to include accidental pollution involving hazardous substances and pollution control measures, with the expectation that such measures would be taken by governments. If the "polluter pays" principle is firmly embedded within legal texts and rules, it establishes a binding obligation for all states^{lix}.

Second: In Legal Acts Issued by the European Union

The "polluter pays" principle is considered a core element of the environmental policy of the European Union^{lx}. The EU was quick to define its content and give it a legal meaning. On 25 January 1975, the EU issued a directive on waste, in which it stated that "the cost of waste disposal shall be borne by the waste producer, generator, or manufacturer, and not by the taxpayer or consumer," in application of the "polluter pays" principle^{lxi}.

The Maastricht Treaty also established this principle as a foundation of environmental policy in Article 174^{lxii}, and again in Article 38 of the Treaty on European Union, through the adoption of Decision No. 631/84. This decision came in response to the "Seveso" disaster, and it concerned the monitoring and supervision of the transport of hazardous materials within EU territories, imposing civil liability on the polluter^{lxiii}.

Third: Development of the Principle in the Rio de Janeiro Declaration

It was expressed in Principle 16 of the Rio Declaration, which states:



“National authorities should endeavor to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment^{lxiv}.”

It can be said that the wording of this principle is non-binding, as it states: *“National authorities should endeavor”*, which is considered a step back compared to the definitions and formulations of the “polluter pays” principle found in the documents of the OECD, the European Union, or international conventions. Moreover, this formulation lacks a precise legal content.^{lxv}

Section Three: International Cases Reflecting the Challenges in Applying the “Polluter Pays” Principle

The European Court of Justice is the international judicial body that has, in recent times, addressed the judicial application of the “polluter pays” principle in several cases. Among them:

First: The Standley Case

The facts of this case revolve around the United Kingdom’s adoption of a directive aimed at combating water pollution by nitrates (NO₃)^{lxvi}. This was followed by a program intended to limit nitrate levels to specific thresholds. Certain areas near rivers were designated as geographical zones for the application of the directive and its action plan, specifically targeting agricultural activities as the source of pollution.

This led to strong dissatisfaction among farmers in those areas, who challenged the implementation of the directive, arguing that it constituted a violation of the polluter pays principle.

In response, the European Court of Justice ruled that farmers should not be forced to bear the cost of pollution control if they are not responsible for it. The Court upheld the directive based on the polluter pays principle, and applied it with a focus on proportionality—meaning the polluter should not be made to bear more than what is fair or legally justified based on their contribution to the pollution^{lxvii}.

Second: The Erika Oil Tanker Case

The case of the MT Erika involves the sinking of an old oil tanker on December 12, 1999, after it was chartered by the Total (TTC) company to supply fuel to the Italian electricity company Enel. The vessel broke in two near the Bay of Biscay, more than 12 nautical miles off the French territorial waters. It was carrying a cargo of 31,000 tons of heavy fuel oil, of which 19,800 tons leaked immediately after the accident. This caused widespread pollution along 400 km of the French Atlantic coastline and led to the death of approximately 150,000 birds^{lxviii}.

Cleanup efforts concluded in 2001, having collected nearly 250,000 tons of waste oil, and the final cleanup operations were completed in December 2003, with a total cost of approximately €64 million. As a result, the French municipality of Mesquer, along with other plaintiffs, filed a lawsuit in French courts against the oil company Total, seeking compensation for the damage and reimbursement of cleanup costs^{lxix}.

The French Court of Cassation upheld the claim and awarded more than €200 million in damages to the affected parties. This decision marked a new judicial direction, not only holding ship operators criminally liable in cases of oil pollution but also requiring a compensation plan for victims of the oil spill^{lxx}.

This ruling demonstrates that the proper and flexible application of the “polluter pays” principle lies in preventing any attempt to evade responsibility for pollution. The company was held liable in proportion to its contribution to the incident^{lxxi}.

Third: The Van de Walle Case



This case arose from an accidental hydrocarbon leak into the basement of a government-owned building from a service station operated by a franchisee of the Texaco company. The storage facilities were found to be defective, prompting the company to claim negligence on the part of the site manager for failing to fulfill his obligations, and they proceeded to terminate the contract between them.

Texaco then took it upon itself, at its own expense, to replace the faulty storage facilities and handle the clean-up operations. However, the public administration compelled the company to pay additional costs for the environmental damage. Subsequently, Mr. Van de Walle filed a lawsuit against senior company officials, seeking compensation^{lxxii}.

There are other examples of international legal applications as well, such as:

The Case of Italian Hotels
Hotel owners in Italy, particularly in the Naples area, protested against the high waste taxes imposed by the Italian government on hotel waste. These taxes were eight times higher than those applied to residential areas.

Although the principle of “polluter pays” appears fair in theory, the hotel owners argued that the tax was unjustly high, as it was based on revenue generated rather than the actual amount of waste produced, which contradicted the very logic of the principle.

They argued that hotels already pay multiple taxes, and this additional financial burden would negatively affect their competitiveness, especially considering the economic challenges faced by the tourism sector.

A major challenge in applying the principle lies in the lack of a fair mechanism for calculating the tax. Instead of considering the actual volume of waste, the tax was applied uniformly. Furthermore, the system did not differentiate between large and small hotels, placing a heavier burden on medium- and small-sized establishments.

In this context, the European Court of Justice stated that environmental taxes should be calculated primarily based on the volume of waste generated, and that any financial obligations must consider the degree of contribution to pollution. When it is difficult to determine the fee based on waste volume, other criteria—such as the type of waste or the polluter’s capacity to produce it—could be used.

Although the general principles of environmental protection aim to promote ecological balance and sustainability, the emergence of the “polluter pays” principle in 1972, as adopted by the OECD in its recommendations, marked a significant step toward placing environmental responsibility on the legal entities and individuals who cause environmental harm through their actions^{lxxiii}.

Originally introduced as an economic principle, it soon evolved into a recognized legal principle in international law, through which states began to implement preventive measures and adopt eco-friendly practices. Polluters were also obligated to bear the costs of remediation and compensation for environmental damage.

Many international agreements and organizations have explicitly endorsed the “polluter pays” principle, prompting states to incorporate it into their domestic legislation^{lxxiv}.

CONCLUSION

At the end of this research, we arrive at several insights and recommendations, summarized as follows:

1. Despite the significant efforts made by the international community to activate a system of international responsibility in response to threats to the human environment, this system still largely operates within the framework of civil liability rules. Therefore, there is a need to implement fair



and equitable punishment for polluters through criminal liability, which remains almost absent in international practices dealing with environmental damage.

2. There is a necessity to draft an international convention on the civil liability of states in international law, with precise formulation of its provisions—particularly regarding all forms and sources of environmental damage. This convention should also take into account the social and economic disparities among states, which would facilitate broader accession and ratification, or at least compliance by non-ratifying states.
3. States must cooperate to develop international law concerning compensation for victims of pollution and other environmental harms resulting from activities carried out under a state's jurisdiction or affecting areas beyond national jurisdiction. This includes setting procedures for environmental impact assessments and monitoring all activities that may cause transboundary environmental harm.
4. The development of standards and core principles of environmental law by specialized international organizations within the UN framework is a result of the collaborative efforts among member states and their sincere will to create and enhance international environmental law. However, these efforts do not negate the need for establishing a global environmental organization dedicated to environmental issues and overseeing the enforcement of international agreements and declarations adopted by world conferences.
5. States should accede to international treaties and conventions that aim to protect the environment from harm and organize liability for damages resulting from environmental pollution with international or transboundary effects.
6. Mechanisms should be established to prevent and resolve environmental disputes, including the implementation of international treaty provisions and decisions.
7. Effective means must be identified to overcome key obstacles faced by developing countries, particularly the least developed and transition economies, in the implementation of environmental law.
8. Strengthening cooperation between governments, international organizations, and civil society is essential for enhancing systems of environmental harm prevention and mitigation.
9. To avoid environmental disputes, states should be encouraged to regularly exchange environmental data and information, assess the transboundary impacts of proposed activities, and engage in early notification and consultation regarding such activities that may cause significant harm to other countries or areas beyond national jurisdiction.
10. Consideration should be given to innovative approaches for conflict avoidance, such as using neutral third parties to facilitate open and comprehensive information exchange—especially between parties with different levels of technical expertise.
11. Regarding the settlement of environmental disputes, the actual and potential roles of international bodies and agencies should be studied. This includes examining the provisions for dispute resolution in international environmental agreements to assess their effectiveness and identifying the most efficient mechanisms for resolving environmental disputes, including the use of expert opinions.
12. The relationship between dispute settlement systems in environmental agreements and those in other international regimes, such as those related to trade and investment, should be studied. Best practices in existing environmental agreements for avoiding and resolving disputes should be identified, and training should be provided to government officials and international judiciary on the relevant rules and procedures.

References



ⁱ Transboundary damage differs from ecological damage, contrary to what some may believe. The latter is narrower in scope than environmental damage, as it refers specifically to harm affecting the air, atmosphere, water, and various species of animals and plants—such as the degradation of nature, the extinction of certain fish species, or the death of some bird species, among others.

ⁱⁱ Linguistically, "pollution" (Arabic: talawwuth) derives from the root referring to soiling and mixing. For example, one might say "he soiled his clothes with mud," meaning he stained them, or "he polluted the water," meaning he muddied it. It also connotes corruption and impurity. The verb lawwatha (to pollute) means to defile or contaminate something. Refer to: *Lisan al-Arab* by Ibn Manzur, previously cited.

In specialized environmental terminology, pollution is defined as any direct degradation of the organic, thermal, biological, or radiological properties of any part of the environment—for instance, by discharging, emitting, or depositing waste or substances that may affect beneficial use. In other words, it results in a condition that is harmful or potentially harmful to public health or the safety of animals, birds, insects, fish, living resources, and plants. See also: *Lisan al-Arab* by Ibn Manzur, previously cited.

ⁱⁱⁱ Kasso Miloud Zine El Abidine, *International Responsibility for Environmental Damage*, previously cited, p. 19.

^{iv} Mohamed Hamdawi, *The Legal Basis of International Responsibility for Environmental Damage*, Master's thesis in International Law and International Relations, Faculty of Law and Political Sciences, Moulay Tahar University, Saida, Algeria, 2008/2009, p. 25.

^v *Ibid.*, p. 26.

^{vi} Zakiyya Hajila, Nasima Attar, "The Effectiveness of the Polluter Pays Principle in International Environmental Protection," *Journal of Law and Humanities*, University of Achour Bouziane, Djelfa, Algeria, Vol. 17, No. 1, April 2024, p. 494.

^{vii} Soumya Douba, *Environmental Tax and the Polluter Pays Principle*, Doctoral thesis, Tax Law specialization, Faculty of Law and Political Sciences, Kasdi Merbah University, Ouargla, 2018/2019, p. 173.

^{viii} Suhair Ibrahim Hajem Al-Hayti, *Legal Mechanisms for Environmental Protection within the Framework of Sustainable Development*, Al-Halabi Legal Publications, Beirut, Lebanon, 1st edition, 2014, p. 225.

^{ix} Youri Mossoux, "The Application of the Polluter Pays Principle to Environmental Risk Management and the Sharing of Pollution Costs," *LexElectronica*, vol. 17.1 (Summer 2012), p. 1.

For more details see: De Sabran Ponteves Elzear, "The Polluter Pays Principle in Community Law," *European Journal of Environmental Law*, France, 2008, pp. 21–60.

^x Alexander Kiss, Dinah Shelton, *International Environmental Law*, Published and distributed by Transnational Publishers, Inc., 3rd edition, New York, 2003, p. 204.

^{xi} Recommendation of May 26, 1972, on Guiding Principles Concerning the Economic Aspects of Environmental Policies at the International Level, C(72)/128, OECD, 1972, available at: <https://legalinstruments.oecd.org/public/doc/4/4.fr.pdf>, Accessed on: 12/12/2023.

^{xii} Turkiya Sayeh, *Environmental Protection under Algerian Legislation*, previously cited, p. 162.

^{xiii} Hélène Trudeau, "The Civil Liability of the Polluter: From the Theory of Abuse of Rights to the Polluter-Pays Principle," *Les Cahiers de Droit*, Faculty of Law, University of Montreal, Quebec, Vol. 34, No. 3, September 1993, p. 786.

^{xiv} Afef Hammami Marrakchi, "The Application of the Polluter-Pays Principle in Environmental Law: Comparison Between Community and Tunisian Legislation," Center for Tax Studies, Faculty of Law of Sfax (C.E.F), Sfax, Tunisia, Collection No. 12, 2009, pp. 441–468.

See also: Nicolas de Sadeleer, *The Principles of the Polluter-Pays, Prevention and Degradation*, Brussels, Bruylant, 1999, p. 37.

^{xv} Sonia Ben Tayba, "Environmental Taxation as a Mechanism for Environmental Protection," Paper presented at the international symposium on The Legal System for Environmental Protection in Light of International Law and Algerian Legislation, organized by the Faculty of Law and Political Science and the Laboratory for Environmental Legal Studies, Chadli Bendjedid University, Guelma, Algeria, December 9–10, 2013, p. 08.

^{xvi} Abdelghani Hassouna, *The Legal Protection of the Environment within the Framework of Sustainable Development*, Doctoral Thesis, Business Law Specialization, Faculty of Law and Political Science, Mohamed Khider University, Biskra, Algeria, 2012/2013, pp. 26–27.

^{xvii} The text of this declaration states that:

"National authorities should endeavor to promote internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, considering..."



^{xviii} See: Article 3 of Law No. 03-10, dated July 19, 2003, concerning the protection of the environment within the framework of sustainable development, Official Gazette, No. 43, issued on July 20, 2003, p. 2.

^{xix} See: Article 103 of the Tunisian Code of Obligations and Contracts and new Article 8 of the law establishing the National Agency for Environmental Protection.

^{xx} Mustapha Kerd El-Oued, "Environmental Protection: A Study in Light of Efforts to Establish Environmental Principles," article published in the online magazine Environmental Development Horizons, Issue No. 84. Available on the website:

<https://www.maan-ctr.org/magazine/article/1084/>,

Article posted on: May 1, 2016. Date of access: July 10, 2024, Time of access: 12:30.

^{xxi} Abdelnasser Ziyad Hiyajna, Environmental Law – The General Theory of Environmental Law with Explanation of Environmental Legislations, Dar Al-Thaqafa for Publishing and Distribution, Amman, Jordan, 2nd edition, 2014, p. 68.

^{xxii} Islam Mohamed Abd El-Samad, International Protection of the Environment from Pollution, New University Publishing House, Alexandria, Egypt, n.ed., 2016, p. 182.

^{xxiii} Hélène Trudeau, "La responsabilité civile du pollueur," op. cit., p. 788.

^{xxiv} Horia Hassani and Mohammed Seghir Sadaoui, "The Polluter Pays Principle as the Basis of Environmental Civil Liability," Journal of Comparative Legal Studies, Hassiba Ben Bouali University, Chlef, Algeria, Vol. 7, Issue 2, December 2021, p. 197.

^{xxv} Abderrahmane Boufelja, Civil Liability for Damages and the Role of Insurance, previously cited reference, p. 117.

Abdelnasser Ziyad Hiyajna, Environmental Law: The General Theory of Environmental Law, previously cited reference, p. 70.

^{xxvi} Karrar Saleh Hammoudi Al-Jassani, "The Principle of Prevention to Avoid Environmental Damage in International Law," article published at:

<https://www.iasj.net/iasj/download/0a8f691d7769ecc2>,

Date of access: January 1, 2023, Time of access: 02:35.

^{xxvii} Zakia Hajila and Nacima Attar, "The Effectiveness of the Polluter Pays Principle in International Environmental Protection," previously cited reference, p. 495.

^{xxviii}

^{xxix} Soumaya Douba, Environmental Tax and the Polluter-Pays Principle, previously cited reference, p. 180.

^{xxx} Abdelnasser Ziyad Hiyajna, Environmental Law: The General Theory of Environmental Law with Explanation of Environmental Legislations, previously cited reference, p. 71 and following.

^{xxxi} Horia Hassani and Mohammed Seghir Sadaoui, "The Polluter Pays Principle as the Basis of Environmental Civil Liability," op. cit., p. 198.

^{xxxii} Horia Hassani and Mohammed Seghir Sadaoui, "The Polluter Pays Principle as the Basis of Environmental Civil Liability," op. cit., p. 198.

^{xxxiii} Brian J. Preston, "Sustainable Development Law in the Courts: The Polluter Pays Principle," The 16th Commonwealth Law Conference, Hong Kong, April 7, 2009, D6: Environmental Law, p. 3.

^{xxxiv} Safia Zaid El-Mal, Environmental Protection within the Framework of Sustainable Development in Light of International Law Provisions, Doctoral Dissertation in International Law, Faculty of Law and Political Science, Mouloud Mammeri University, Tizi Ouzou, Algeria, 2012/2013, p. 411.

^{xxxv} Soumaya Douba, Environmental Tax and the Polluter-Pays Principle, previously cited reference, p. 188.

^{xxxvi} For more details about the Stockholm Declaration, see the link: <https://political-encyclopedia.org/dictionary/>,

Date of access: July 10, 2023, at 11:30.

^{xxxvii} Jana Abu Saleh, The Environment Between Theory and Reality (Challenges of Arab Countries), Arab Scientific Publishers, Lebanon, Beirut, 1st edition, 2015, p. 271

. — A declaration was also issued concerning environmental improvement, which included a preamble and 26 principles, as well as an action plan consisting of 109 recommendations. Altogether, this marked the true birth of environmental awareness. Principle 24 states:

"International issues concerning environmental protection should be handled with the spirit of cooperation by all countries, large and small, on an equal footing. Cooperation through multilateral and bilateral agreements or other appropriate means is essential to effectively identify, prevent, reduce, and eliminate environmental damage resulting from all activities conducted in all fields, while respecting the sovereignty and interests of all states."



^{xxxviii} See also: Ayat Mohamed Saud, "The Principle of Polluter Liability in International Environmental Law," available on the website Al-Hiwar Al-Mutamaddin, Issue No. 5799: <http://www.ahewar.org>, Date of article publication: February 26, 2018. Date of access: February 13, 2023.

^{xxxix} Soumaya Douba, Environmental Tax and the Polluter-Pays Principle, previously cited reference, p. 188.

^{xl} See also: Handbook for the Vienna Convention for the Protection of the Ozone Layer (1985), Sixth Edition (2006), UNEP, Ozone Secretariat, United Nations Environment Programme.

^{xli} Ayat Mohamed Saud, "The Principle of Polluter Liability in International Environmental Law," previously cited reference.

^{xlii} The Convention stipulates that the costs of measures to prevent and reduce harm shall, as far as possible and as appropriate, be borne by the responsible party.

Available at the link: <https://www.un.org/ar/observances/biological-diversity-day/convention>

Date of access: October 1, 2023, Time of access: 20:20.

^{xliii} Kyoto Protocol, annexed to the United Nations Framework Convention on Climate Change,

Available at the link: <https://unfccc.int/resource/docs/convkp/kparabic.pdf>

Date of access: February 26, 2023, Time of access: 11:25.

^{xliv} Soumaya Douba, Environmental Tax and the Polluter-Pays Principle, previously cited reference, p. 191.

^{xlv} Mustafa Kord El-Oued, "Environmental Protection: A Study in Light of the Efforts Establishing Environmental Principles," previously cited reference.

^{xlvi} Jana Abu Saleh, The Environment Between Theory and Reality (Challenges of Arab Countries), previously cited reference, p. 278.

^{xlvii} "The Paris Conference, called COP 21 (Conference of the Parties), as it was the twenty-first Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), was held at the Paris-Le Bourget Exhibition Center from November 30 to December 12, 2015. A universal agreement text was ultimately adopted by all 195 party delegations to the Convention. A new cycle of international climate negotiations then began. This new approach is based on the contributions of all states according to their capacities, breaking away from a multilateral system that distributed greenhouse gas (GHG) emission rights to be negotiated on an international market. Climate issues are thus integrated into national strategies, both in terms of reducing GHG emissions and in adapting to the consequences of global warming—that is, in development choices with their political, economic, and social dimensions. The success of the agreement will be measured by the ability to increase national emission reduction targets, which are currently largely insufficient to keep global warming below the 2°C threshold, and by the funding that will be mobilized to achieve these targets."

Written by: Catherine Aubertin, Environmental Economist, Research Director at the French National Research Institute for Sustainable Development.

Source: <https://www.universalis.fr/encyclopedia/cop-21/>

^{xlviii} Kazem Al-Muqaddadi and Ali Abdullah Al-Hawsh, Marine Environmental Protection, Academic Book Center, Amman, Jordan, n.d., 2016, p. 12.

^{xlix} Islam Desouki Abdel Nabi Desouki, The General Theory of International Responsibility Without Fault, previously cited reference, p. 266.

ⁱ Meriem Halaimiya, "The Torrey Canyon Incident and the New Rules of International Maritime Law," Journal of Legal Studies, Yahia Fares University, Médéa, Algeria, Vol. 8, No. 2, June 2022, p. 821.

ⁱⁱ Soumaya Dobbah, Environmental Tax and the Polluter Pays Principle, previously cited reference, p. 193.

ⁱⁱⁱ Kazem Al-Muqaddadi and Ali Abdullah Al-Hawsh, Marine Environmental Protection, previously cited reference, p. 122.

ⁱⁱⁱⁱ Article 3 of the Paris Convention clarifies that the operator of a nuclear installation bears absolute liability for all damages specified in the Convention arising from a nuclear incident occurring at the installation or involving nuclear materials transported to or from it. Cited in: Hadeel Ali Mohammed Al-Muadhin and Hadi Naeem Al-Maliki, "The Risk Theory as a Basis for International Responsibility for Lawful Acts of the UN Security Council Characterized by Exceptional Danger," Journal of Scientific Research, Faculty of Law, University of Al-Qadisiyah, Baghdad, Iraq, Part 3, Vol. 36, (Special Issue), 2021, p. 170.

^{liv} The Convention, through Article 4, states: "The operator of the nuclear installation shall bear absolute liability for nuclear damage resulting from an incident within the installation or involving nuclear material sent to it; the liability of the nuclear operator under this Convention shall be absolute." Cited in: Soumaya Dobbah, Environmental Tax and the Polluter Pays Principle, previously cited reference, p. 193.

^{lv} The Convention limited liability to a single person, namely the operator of the nuclear ship, whether they own the ship or merely operate it. Article 2, paragraph 2 of the Convention provides: "No person other than the operator of the ship shall be held liable for nuclear damage."



Article 1, paragraph 4, defines the operator as: “The person authorized by the flag state to operate the nuclear ship, or the contracting state itself when it operates the ship directly.”

The rationale for concentrating liability on the operator is that they are the one who benefits from the operation of the ship, and thus should bear responsibility for any damages caused by it.

Cited in: Hadeel Ali Mohammed Al-Muadhin and Hadi Naeem Al-Maliki, *The Risk Theory as a Basis for International Responsibility for Lawful Acts of the UN Security Council Characterized by Exceptional Danger*, previously cited reference, p. 108.

^{lvi} Abd Al-Aal Al-Deirbi, *International Environmental Protection and the Mechanisms of Dispute Settlement*, previously cited reference, pp. 164–165

^{lvii} Carina Costa de Oliveira, *La Réparation des Dommages Environnementaux en Droit International* [The Reparation of Environmental Damage in International Law], Doctoral thesis in law, Doctoral School of International Law, International Relations and Comparative Law (ED9), Université Panthéon-Assas, Paris, France, 2012, p. 49.

^{lviii} This recommendation first introduced the Polluter Pays Principle, stating: “The polluter should bear the costs related to the prevention and control measures determined by public authorities in order to maintain the environment in an acceptable condition.”

See in this regard: Ashraf Arafat Abu Hijazah, *The Polluter Pays Principle*, previously cited reference, p. 94. The first paragraph of the same recommendation stated: “The Polluter Pays Principle is considered a constitutional principle for member states in terms of determining the costs of necessary measures to prevent and control pollution, as determined by public authorities in member states.” Its second paragraph further emphasized the uniform application of the Polluter Pays Principle by encouraging member states to adopt a common basis for environmental policies that would promote the optimal and rational use of scarce natural resources and prevent distortions in international trade and investment. See: Michel (P.), *op. cit.*

^{lix} Waleed Fouad Al-Mahamid, previously cited reference, p. 28.

^{lx} Nicolas de Sadeleer, *Environmental Principles: From Political Slogans to Legal Rules*.

^{lxi} Mohammed Bouat, *International Responsibility for Environmental Damage*, previously cited reference, p. 55.

^{lxii} Klaus Töpfer et al., *op. cit.*, p. 34.

^{lxiii} Omar Mahmoud Aamer, previously cited reference, p. 323.

^{lxiv} Romi Raphaël, *Law and Environmental Administration*, Montchrestien, Paris, France, 5th ed., 2004, p. 117.

^{lxv} Marc Pallemarts, “The Rio Conference: Assessment and Perspectives,” *Environmental Law News*, proceedings of the conference held on 17–18/12/1994, Bruylant, Brussels, p. 106.

^{lxvi} Yacine Graaf, *The Role of the Judiciary in Environmental Protection*, Doctoral Thesis, Legal Sciences specialization, Environmental Law Branch, Faculty of Law and Political Science, Djilali Liabes University, Sidi Bel Abbes, Algeria, 2018/2019, pp. 150–151 (adapted).

^{lxvii} Kamel Haidoum and Dina Kawthar Warith, “Compensation for Damage Resulting from Marine Pollution – The Erika Case as a Model,” *Journal of Comparative Legal Studies*, Hassiba Ben Bouali University, Chlef, Algeria, Vol. 8, No. 2, 2022, p. 380.

^{lxviii} Yacine Graaf, *The Role of the Judiciary in Environmental Protection*, previously cited reference, p. 152.

^{lxix} Jérôme Bouquet-Elkaïm, “The Erika Case: A Jurisprudential Illustration of the Complementarity Between the CLC Convention and Common Law Liability,” *R.E.D.L.*, University of Limoges, France, No. 3, September 2008, pp. 267–276.

^{lxx} The European Court of Justice, before which the dispute was brought, addressed two issues in its ruling: the first concerning the definition of waste, and the second relating to the identity of the polluter based on the 1975 Waste Framework Directive. In response to the first issue, the Court stated that heavy fuel oil is not considered waste unless it is mixed with sand or water. Regarding the second issue, the Court expanded the definition of a waste producer to include the owner of the substance before it became waste, meaning that this individual can be considered a producer under the meaning of the EU Directive. The Court concluded that the disposal of waste is an obligation shared by all contributors to the waste that results in a pollution risk.

^{lxxi} Yacine Graaf, *The Role of the Judiciary in Environmental Protection*, previously cited reference, p. 151.

Mohammed Derbal, *The Role of International Law in Environmental Protection*, previously cited reference, p. 201.

^{lxxii} Mohammed Derbal, *The Role of International Law in Environmental Protection*, previously cited reference, p. 201.

^{lxxiii} Zakia Hajila, Nassima Attar, “The Effectiveness of the Polluter Pays Principle in International Environmental Protection,” previously cited reference, p. 495.



^{lxxiv} Ibid., p. 496