

Harmonizing International and National Efforts in Environmental Protection : Challenges and Prospects

Dr. Labidi lazhar¹, Dr. Zerguini Radia², Dr. Medellel Chaouki³

¹University of El Oued- Algeria

Labidi-lazhar@univ-eloued.dz

²University of El Oued- Algeria

zerguini-radia@univ-eloued.dz

³University of El Oued- Algeria

Medellel-chaouki@univ-eloued.dz

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Summary

This study aims to shed light on the mechanisms of international and national environmental protection by reviewing the adopted legal and institutional frameworks. At the international level, conferences and agreements have established fundamental principles, most notably the precautionary principle, the polluter pays principle, and environmental impact assessment. These principles have been promoted and activated by both governmental and non-governmental international organizations.

At the national level, Algeria has adopted these principles through legislative texts such as Law No. 03-10 on environmental protection and Law No. 01-20 on regional planning. The country has also reinforced this protection by establishing specialized institutions, including the National Observatory for the Environment, the National Waste Agency, the National Coastal Commission, and the National Agency for Geology and Mining Supervision.

The study recommends strengthening the implementation of environmental laws, supporting the independence of specialized institutions, and intensifying international cooperation to address growing environmental challenges.

Keywords: Protection, Law, Environment, Regulations, Conferences, Agreements.

INTRODUCTION

Environmental issues have become among the most pressing challenges facing the international community in the 21st century due to their direct impact on human rights, sustainable development, and societal stability. The rapid environmental degradation—caused by industrial activities, urban expansion, and the unsustainable exploitation of natural resources—has threatened ecological balance and created transboundary environmental crises that no single country can address without international cooperation.

In response, the international community has developed a system of legal rules and international treaties aimed at protecting the environment and preserving its resources, most notably the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity, the Basel Convention on Hazardous Wastes, among others.

On the other hand, national legislations seek to translate these international commitments into domestic legal frameworks that ensure environmental protection through criminal, administrative, and civil laws, while also establishing regulatory bodies and strengthening the role of environmental judiciary.

Despite this legal and institutional momentum, a gap remains between legal texts and their practical implementation, raising several legal questions, most notably: How effective are the international and national frameworks in ensuring environmental protection? Do states' obligations under international environmental law enhance actual environmental protection at the national level, or does the absence of enforcement mechanisms and adequate sanctions weaken the effectiveness of these obligations?

This study will address the central research problem using the descriptive method by shedding light on the legal dimension added by international law in the field of environmental protection. It will also adopt the analytical method to examine the obstacles that hinder such protection, particularly the

violations that go beyond the true concept of environmental protection, as well as the challenges that must be addressed to achieve effective protection consistent with the true legal concept of environmental preservation under international law.

To this end, the study is divided into two sections:

Section One: Environmental Protection at the International Level

Section Two: Environmental Protection at the National Level

Section One: Environmental Protection at the International Level

Environmental protection has become an urgent international issue due to increasing environmental degradation and the escalation of transboundary climate crises. These challenges have prompted the international community to adopt a series of environmental conferences and agreements aimed at establishing a shared legal framework for the protection of natural resources. These efforts have contributed to shaping the principles of international environmental law, such as the precautionary principle and environmental justice.

First Requirement: Environmental Protection within the Framework of International Conferences and Agreements

Environmental protection is one of the most prominent global challenges, which has necessitated the intervention of the international community through the organization of international conferences and the adoption of multilateral agreements. These aimed to establish a common legal framework to address the growing environmental crises.

These conferences helped to consolidate international legal principles such as the precautionary principle and the polluter pays principle, and emphasized the need for cooperation among states to achieve sustainable development. Through these declarations and agreements, the foundations of modern international environmental law were laid, seeking a balance between environmental protection and the right of states to develop.

First Branch: Within the Framework of International Conferences

1. The Stockholm Conference of 1972

The United Nations Conference on the Human Environment, held in Stockholm from June 5 to 16, 1972, was the first global conference to focus on environmental issues. It resulted in the "Stockholm Declaration", which included 26 principles, the most notable being:¹

Principle 21: States have the sovereign right to exploit their own resources pursuant to their own environmental policies, but they also bear the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or areas beyond national jurisdiction.

The conference also led to the establishment of the United Nations Environment Programme (UNEP) in Nairobi, Kenya, to coordinate international efforts in environmental protection.

In response to the growing environmental risks and the complexity of environmental issues, and following a recommendation by the United Nations Economic and Social Council, the General Assembly, on December 3, 1968, called for the organization of an international conference focused on the human environment. This conference was held in the Swedish capital, Stockholm, from June 5 to 16, 1972, under the slogan "Only One Earth".²

The conference focused on the threats posed by human activities to the natural environment and the direct impact of these threats on the quality of life and human health. The participants also discussed the possibility of achieving economic development without harming the environment.

At the conclusion of its work, the conference issued the "Stockholm Declaration on the Human Environment"³, which asserted that living in a clean environment is a human right and emphasized the

responsibility of individuals and communities to protect and improve the environment for the benefit of future generations.⁴

This conference represented a turning point in the history of the international system, as it launched the first global collective action to lay the foundations for environmental protection and the prevention of environmental disasters caused by pollution.

2. The Nairobi Conference of 1982

The Nairobi Conference was held in 1982 to mark the tenth anniversary of the Stockholm Conference. It focused on assessing the progress made in implementing the recommendations of the Stockholm Conference and on enhancing international cooperation in the field of environmental protection. The conference issued the "Nairobi Declaration", which emphasized the importance of sustainable development and the need for cooperation among states to achieve environmental protection goals.⁵

At the conclusion of this special session, participants agreed on the establishment of an implementation mechanism and formally adopted the Nairobi Declaration, which consisted of ten articles outlining the main environmental problems and how to address them in accordance with the Stockholm Declaration and its action plans.

The Nairobi Declaration is considered a step forward in the development of international environmental law and international cooperation. It called upon all peoples and governments of the world to assume their historical responsibility—collectively and individually—to ensure the safe transfer of our small planet to future generations.

Unfortunately, however, not long after its adoption, most of the articles of the Nairobi Declaration remained unimplemented, despite numerous international and regional efforts at the time. This lack of implementation can largely be attributed to international conflicts, divisions, and the resulting paralysis of the United Nations, the body responsible for enforcing the Nairobi Declaration.⁶

3. The Rio de Janeiro Conference of 1992

The United Nations Conference on Environment and Development, known as the Earth Summit, was held in Rio de Janeiro from June 3 to 14, 1992.

It had a significant impact on the development of international environmental law, resulting in the adoption of several key instruments:

The Rio Declaration on Environment and Development:

This declaration contains 27 principles, among the most notable are:⁷

Principle 15: Calls for the application of the precautionary approach, stating that lack of full scientific certainty shall not be used as a reason to postpone cost-effective measures to prevent environmental degradation.

Principle 16: Affirms that "the polluter should bear the cost of pollution," reinforcing the polluter pays principle.

Agenda 21:

A comprehensive action plan for achieving sustainable development, covering areas such as poverty reduction, changing consumption patterns, protection of the atmosphere, and the management of natural resources.

The Three Rio Conventions:

The United Nations Framework Convention on Climate Change (UNFCCC)

The Convention on Biological Diversity (CBD)

The United Nations Convention to Combat Desertification (UNCCD)

The conference also produced an 800-page working document titled Agenda 21, outlining principles of sustainable development aligned with environmental sustainability across all fields of economic activity.

The Earth Summit highlighted the vital connection between the environment and development, as well as the link between poverty, pollution, and the degradation of natural resources.

However, it fell short of expectations and failed to address several major environmental issues—particularly with regard to the level of development aid provided by wealthy nations to poorer countries.⁸

4. The Johannesburg Conference of 2002

The Johannesburg Conference was held from August 26 to September 4, 2002, with the aim of assessing the progress made since the Rio Earth Summit. The conference focused on implementing sustainable development commitments and resulted in the following key outcomes:

The Johannesburg Plan of Implementation:

A document outlining the necessary actions to achieve sustainable development, with particular emphasis on poverty eradication, changing patterns of consumption and production, and protecting natural resources.

Promotion of Partnerships:

The conference emphasized strengthening partnerships among governments, the private sector, and civil society to achieve sustainable development goals.

It was neither a secret nor a matter of debate that the progress made in implementing sustainable development since the 1992 Rio Earth Summit had been deeply disappointing. Poverty had worsened, and environmental degradation had continued. The General Assembly noted that the world was not seeking new discussions or policies, but rather a summit that would lead to concrete action and tangible results.

While the Johannesburg Conference did lay a foundation and paved the way for future action, it ultimately failed to offer effective solutions to combat poverty and the ongoing deterioration of the natural environment. In truth, there were no miracles—only the realization that continuous practical steps are needed to tackle the world's most pressing problems.⁹

As a conference focused on implementation, Johannesburg did not produce any particularly significant outcomes. No new treaties were signed, and many of the agreed-upon goals were drawn from less prominent prior meetings. However, some important new objectives were established, such as:

Halving the proportion of people without access to basic sanitation by 2015

Ensuring that by 2020, chemicals are produced and used in ways that do not harm human health or the environment

5. The Copenhagen Conference 2009 (COP15)

The United Nations Climate Change Conference (COP15) was held in Copenhagen from December 7 to 18, 2009. The main objective was to reach a new agreement to replace the Kyoto Protocol. However, the conference resulted in the "**Copenhagen Accord**", which:¹⁰

- Was not legally binding, but rather a political statement acknowledging the need to limit global temperature rise to below 2°C.
- Included voluntary pledges by countries to reduce emissions, but lacked enforcement mechanisms or penalties for non-compliance.

The accord faced widespread criticism for its lack of ambition and legal obligation, leading to disappointment among developing countries and civil society organizations.

Among the discussions that took place during the conference was the signing of an agreement outlining new international goals for combating climate change. However, the key decisions—those expected to significantly impact the world's population and future generations—were not adopted. The representatives of the countries were unable to agree on a unified set of targets. As a result, they opted to postpone their work to 2010, with follow-up meetings planned in **Bonn** and later in **Mexico**.

Second Branch: Within the Framework of International Agreements

Environmental protection is one of the most significant challenges facing the international community in the modern era, due to the increasing manifestations of pollution, climate change, and the loss of biodiversity. States have come to recognize the importance of international cooperation in addressing these challenges, and have therefore engaged in the conclusion of multilateral agreements aimed at protecting the environment at both international and national levels. Among the most important of these agreements are: the Vienna Convention for the Protection of the Ozone Layer, the United Nations Framework Convention on Climate Change (UNFCCC), and the Convention on Biological Diversity

(CBD)—which together represent key pillars of the international environmental legal system. The following is a closer look at each:

First: The Vienna Convention for the Protection of the Ozone Layer

The Vienna Convention for the Protection of the Ozone Layer was adopted in 1985 with the goal of protecting human health and the environment from the harmful effects of substances that deplete the ozone layer.

Although the convention did not impose binding obligations to reduce the use of these substances, it laid the groundwork for the 1987 Montreal Protocol, which explicitly set out legal measures to reduce the production and consumption of ozone-depleting substances.¹¹

It included a call for the signatory states to reduce the production of **chlorofluorocarbons (CFCs)** by up to 50%.

The member states of this Protocol—as parties to the Convention—committed themselves to protecting the ozone layer by taking appropriate measures to fairly reduce the total global emissions of ozone-depleting substances, with the ultimate goal of eliminating them altogether, in accordance with modern scientific and technological means.¹²

Second: The United Nations Framework Convention on Climate Change (UNFCCC)

This convention represents the primary international legal framework for combating climate change. It was signed during the **Earth Summit in Rio de Janeiro in 1992**. The main goal of the convention is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. It imposes obligations on developed countries to reduce emissions and laid the groundwork for the **Kyoto Protocol (1997)** and the **Paris Agreement (2015)**.¹³

Addressing the issue of climate change is considered one of the most critical environmental challenges, requiring coordinated and effective international cooperation. In this context, the world's nations adopted an international agreement on **May 9, 1992**, known as the **United Nations Framework Convention on Climate Change (UNFCCC)**, which formed the general legal framework for confronting climate change.

On **December 21, 1997**, the **Kyoto Protocol** was signed as an operational mechanism of the Convention, with the aim of strengthening the commitments of its member states to reduce greenhouse gas emissions. The protocol was a response to the urgent need to reinforce the provisions of the Convention, especially in light of scientific findings from the early 20th century that revealed clear evidence of worsening global warming.¹⁴

Specialized atmospheric science studies confirmed that the rise in Earth's surface temperature due to greenhouse gases is, in its origin, a natural phenomenon. However, it has evolved into a serious environmental threat due to the increasing emissions resulting from human industrial activities—chief among them being carbon dioxide (CO₂). This has led to a consistent annual rise in global air temperatures.¹⁵

Third: The Convention on Biological Diversity (CBD)

This convention was also one of the outcomes of the **1992 Earth Summit**. It aims to conserve biological diversity, ensure the sustainable use of its components, and promote the fair and equitable sharing of the benefits arising from the utilization of genetic resources. The convention encourages the development of national plans and strategies, as well as the creation of domestic legislation to protect species and ecosystems. It also links environmental protection with sustainable development.¹⁶

The **Convention on Biological Diversity**, signed on **June 5, 1992**, in **Rio de Janeiro**, addresses the necessity of ensuring ecological balance primarily through the preservation of biological diversity,

recognizing its vital importance. According to **Article 1** of the convention, the signatory states commit to achieving the following objectives:¹⁷

- The conservation and sustainable use of biological diversity.
- The fair and equitable sharing of the benefits arising from the utilization of natural resources.
- The signatory parties to the Convention also commit to developing a **biodiversity action plan or strategy** that translates the objectives of the Convention into concrete national measures, in accordance with its provisions—particularly **Articles 6 and 26**—in addition to implementing all of its clauses.
- **Second Requirement: Environmental Protection within the Framework of International Organizations**
- Environmental protection is one of the global issues that has drawn significant attention from international organizations, both governmental and non-governmental. The role of these organizations has expanded to include awareness-raising, setting standards, monitoring, coordination, and even direct involvement in formulating international environmental policies. This institutional effort is divided into two categories: **intergovernmental organizations** and **non-governmental international organizations**, both of which play an active role in environmental protection from various perspectives.

First Branch: Intergovernmental Organizations

1. The International Labour Organization (ILO)

Although the **International Labour Organization (ILO)** is primarily concerned with workers' rights and working conditions, it also plays an important role in linking environmental issues with occupational safety. The ILO is dedicated to creating a healthy work environment free from pollutants and environmental hazards that may affect workers' health. It has issued several conventions and recommendations related to environmental aspects in the workplace, such as **Convention No. 148** on the working environment and air quality.¹⁸

2. The Food and Agriculture Organization (FAO)

The **Food and Agriculture Organization (FAO)** plays a pivotal role in environmental preservation through its programs on **natural resource management, combating desertification, forest protection, and sustainable agricultural development**. The FAO also publishes regular reports on the state of environmental resources, such as *"The State of the World's Forests"* and *"The State of Land and Water Resources."*¹⁹

3. The World Health Organization (WHO)

The **World Health Organization (WHO)** is concerned with the close link between public health and the environment. It oversees studies related to **air and water pollution, hazardous waste, and the impact of climate change on health**. The WHO also advocates for **environmental justice** as a fundamental component of overall health.²⁰

4. The International Maritime Organization (IMO)

The **International Maritime Organization (IMO)** aims to protect the **marine environment** from pollution caused by maritime transport. One of its most notable achievements is the adoption of the **MARPOL Convention (1973)**, which establishes strict regulations to reduce marine emissions and waste.²¹

Second Branch: International Non-Governmental Organizations

1. The International Organization for Standardization (ISO)

Since its establishment in 1947, the **International Organization for Standardization (ISO)** has worked to facilitate cooperation and standardize industrial practices at the international level. Its aim is to support the global exchange of goods and services and to enhance collaboration in the fields of **development, science, technology, and economics**.

In the field of environmental protection, ISO has developed **global standards for environmental management and performance evaluation**, known as the **ISO 14000 series**.

This series comprises a set of international standards that address the **environmental aspects of products, environmental performance assessment, and life cycle analysis**.

The ISO 14000 standards represent **environmental management systems** designed to promote ongoing improvement and development in environmental protection while maintaining a balance with economic needs.²²

ISO is considered one of the most influential non-governmental organizations in environmental protection, particularly through its issuance of international standards such as **ISO 14000**, which help organizations **minimize their environmental impact and achieve regulatory compliance**.²³

2. The International Union for Conservation of Nature (IUCN)

The **International Union for Conservation of Nature (IUCN)** was established in **1948** in **Fontainebleau, France**, at the initiative of the French government. The Union brings together governments, non-governmental organizations, environmental protection associations, scientists, and environmental experts, with the goal of conserving and sustainably using living environmental resources.

The IUCN has more than **450 members**, including governments and NGOs from over **100 countries**, and collaborates with over **700 experts** in fields such as **endangered species, protected areas, ecology, environmental planning, environmental policy, law, management, and environmental education**.²⁴

The Union has played a key role in the development of major international agreements on the conservation of nature and natural resources. A prominent example is the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**.

Furthermore, the IUCN was the first organization to draft the **World Charter for Nature**, which was adopted by the **United Nations General Assembly** in **October 1982**.

3. The World Wide Fund for Nature (WWF)

The **World Wide Fund for Nature (WWF)** was established in **1961** and is one of the most well-known non-governmental organizations worldwide, thanks in part to its iconic logo featuring the **giant panda**, a rare animal species.

The WWF's mission is to raise, manage, and provide financial support for the conservation of the natural environment—including wildlife, plant life, landscapes, water, soil, air, and other natural resources—on a global scale.

Within the framework of international law, the WWF has intervened particularly to ensure the implementation of existing environmental regulations. It has focused on the effective enforcement of various international agreements, such as the **Washington Convention (CITES)** on international trade in endangered species of wild fauna and flora.²⁵

The WWF also played a central role—alongside the **IUCN** and the **United Nations Environment Programme (UNEP)**—in drafting and implementing the **World Conservation Strategy (1980)** and the **Caring for the Earth Strategy (1991)**.

These, then, are the most prominent organizations related to environmental protection. Despite differences in their objectives and variations in the scope and nature of the programs and activities they carry out, they share a common goal: **raising public awareness about the importance of the environment**, promoting adherence to regulations that ensure its protection, and encouraging people to participate in achieving environmental objectives.

The **WWF** is one of the **oldest and most renowned non-governmental environmental organizations**, focusing on the protection of endangered species and ecosystems, combating climate change, and promoting sustainable development. It also publishes regular reports, such as the **"Living Planet Report,"** which monitors the health of the global environment.²⁶

Section Two: Environmental Protection at the National Level

First Requirement: Legal Instruments for Environmental Protection

First Branch: The Precautionary Principle

The **precautionary principle** is one of the fundamental principles of modern environmental law. It emerged in response to the rapid pace of scientific and technological advancement, which poses potential threats to the environment—threats that may be serious even if not yet scientifically proven with absolute certainty.

The principle aims to ensure environmental protection against possible harm **before it occurs**, by adopting **preventive measures** in the face of activities that may cause serious or irreversible damage, even in the absence of conclusive scientific evidence.

1. Definition of the Precautionary Principle

The precautionary principle first emerged in the **1980s** within the context of **international environmental protection**, and since then, it has been extended to include **human health**.

According to legal scholars, this principle means that when there is **scientific uncertainty regarding the existence of a risk**, reasonable measures should be taken to allow **technological advancement** in the concerned activity while **safeguarding the environment and human health**.²⁷

Thus, the principle inherently involves action and research in pursuit of certainty—it calls for **not delaying innovation while awaiting final proof of its safety**.

International texts and jurisprudential interpretations that have addressed the precautionary principle, either by reference or study, have not initiated a definition of it except by mentioning the characteristics that distinguish it from similar principles, or by referring to the circumstances for which the principle is applied. The distinctiveness of the precautionary principle is primarily due to the unique nature of the risk it regulates—a special type of risk linked to the emergence of modern technologies, the introduction of new practical methods of production, and the excessive depletion of energy resources, the main source of greenhouse gas emissions into the atmosphere.

This has led to the consideration of a principle that does not rely on conclusive scientific facts for its existence, which embodies the modern approach to confronting a special type of risk whose effects often appear late, making their treatment impossible or extremely costly.

There is no universally accepted definition of the precautionary principle; however, some definitions can be mentioned. For example, the French law statement of 1995 defines it as: "The absence of certainty, taking into account scientific and technical knowledge, should not delay the adoption of effective and appropriate measures aimed at avoiding the risk of serious and irreversible damage with an economically acceptable cost."

It was also defined by the 1998 Rio Declaration as: "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically, and the burden of proof lies with the activity's proponent."

Additionally, the 2000 communication of the European Union on the precautionary principle defines it as: "The invocation of the precautionary principle is a decision taken in the context of insufficient, incomplete, or uncertain scientific information, and in the presence of indications that the possible effects on the environment or human, animal, or plant health may be serious and incompatible with the chosen level of protection."²⁸

The precautionary principle also defines the stance that must be observed by anyone making a decision related to an activity that can reasonably be assumed to involve serious harm to the health or safety of current and future generations, or to the environment. This obligation particularly applies to public authorities, who must prioritize health and safety commitments over the freedom of exchanges between private parties or between states.

Second: Conditions for Implementing the Precautionary Principle to Protect the Environment

In order for this principle to be properly and effectively applied, certain conditions must be met that justify resorting to it, such as the existence of a potential risk threatening the environment or human health, and the absence of scientific certainty regarding this risk. Additionally, it is necessary to take measures that balance environmental protection with economic and social interests. Accordingly, studying the conditions for activating the precautionary principle is essential to understanding how it can be used as a

preventive legal tool in national and international environmental policies. These conditions will be outlined as follows:²⁹

1. Existence of an Assumed Risk and Seriousness of Harm

The absence of scientific facts, or their presence in an uncertain form, prompts resorting to the assumption and evaluation of risks in order to reach conclusive results regarding the existence of a risk, the description of the risk, its assessment, and ultimately its control. The activation of the precautionary principle does not apply to minor harms; it only applies in the context of serious potential danger.

Principle 15 of the Rio Declaration referred to the serious risk whose consequences cannot be repaired, as did paragraph three of Article 2 of the Climate Change Convention, which mentions serious and irreversible harm. Likewise, the 1992 United Nations Framework Convention on Climate Change stipulated that the parties take precautionary measures to anticipate or reduce the causes of climate change and mitigate its adverse effects when there is a threat of serious disruption to the climate or in cases of irreparable damage.

2. Absence of Scientific Certainty

The presumed harm addressed by the precautionary principle is not certain to occur. Here, we are often dealing with unclear facts, or facts that do not represent a consensus among all specialists, or represent a minority opinion among experts. Scientific and technological developments have made the resulting findings characterized by scientific uncertainty, meaning the absence of conclusive evidence regarding the causal relationship between the harm and its causes. This is the core distinction between the principle of prevention and the precautionary principle.

3. Existence of Genuine Political Will

Even in the presence of potential risks threatening the environment amid scientific uncertainty, the precautionary principle cannot be invoked except when there is a political decision issued by a genuine will of the competent authority; otherwise, all previous considerations lose meaning. The political decision is what grants the principle its binding force. This explains why developed countries pay serious attention to the principle and apply it strictly, unlike other countries that do not implement it despite adopting it in their domestic legislation.

Second Section: Conducting an Environmental Impact Assessment

Environmental impact assessment (EIA) of projects is considered one of the most important advanced mechanisms and innovative strategies in environmental concepts. It is relied upon by stakeholders in the field of environmental protection and improvement by achieving balance and harmony between environmental pillars and the requirements of development, in order to achieve sustainable development.

First: The Concept of Environmental Impact Assessment: There are multiple jurisprudential and legislative definitions of environmental impact assessment, but they agree that it is a relatively new concept in environmental law, and a preventive mechanism based on the duty to coordinate development and the environment in environmental planning.

1. Jurisprudential Definition:

"Environmental impact assessment is the process of studying the anticipated environmental effects or consequences of harmful and restrictive developmental projects, both direct and indirect, and their results, as well as the likelihood of damages occurring to the community in the project area or adjacent areas, whether local, regional, or global, with the aim of addressing or avoiding these damages and effects."

2. Legislative Definition:

The French legislator defined environmental impact assessment through Law No. 2004-489³⁰ issued on June 3, 2004, in Article 121, paragraph 1, stating: "Works and projects carried out by public institutions that require approval or decision must respect the environmental impact and prepare preliminary studies for construction or expansions to determine their effect on the environment and the extent of potential risk exposure."

As for the Algerian legislator, the environmental impact assessment has been defined through several legal texts, among which we mention:

- **Law 83-03:**³¹
"Environmental impact assessment is considered a fundamental tool for promoting environmental protection, aiming to identify and estimate the direct effects of projects on environmental balance as well as on the framework and quality of the residents' living conditions."
- **Executive Decree 90-78**³²**related to Impact Assessment:**
"The impact assessment system is a prior procedure to which all major works, developments, and installations are subjected due to their importance, scale, and effects, which may cause direct or indirect harm to the environment, particularly public health, agriculture, natural areas, animals, plants, the preservation of sites and monuments, and good neighborliness."
- **Law 03-10**³³**related to Environmental Protection:**
"Development projects, structures, fixed installations, factories, works, and construction programs that affect the environment directly or indirectly, immediately or later, particularly affecting species, resources, natural habitats and areas, ecological balances, as well as the quality and framework of living conditions, are subject beforehand, as applicable, to an environmental impact study or summary."

Second: Objectives of Conducting an Environmental Impact Assessment

The environmental impact assessment has many objectives, including:

1. 1. Risk Assessment

Assessment is a process that allows the consideration of potential environmental impacts and the interests that must be protected in every development decision related to the environment, enabling rational decision-making.

When it comes to environmental protection, prevention is much cheaper and more effective than treatment. Most countries now seek to assess the potential harm from new investments affecting the environment, and these assessments have become the general rule.

A large number of international agreements related to environmental protection require conducting assessments of the potential impacts of activities planned to be carried out, which may cause environmental degradation. Among these are:³⁴

- The 1982 United Nations Convention on the Law of the Sea (Montego Bay Convention).
- The 1992 United Nations Framework Convention on Climate Change.
- The 1992 United Nations Convention on Biological Diversity.

The necessity of conducting such assessments has also been stipulated within the framework of the European Union.

The assessment process is still evolving, and a considerable amount of research is ongoing in this regard. The World Bank has undertaken studies on the impact of integrating issues such as biodiversity and climate change into sectoral policies related to agriculture, energy, transport, and political infrastructure. According to United Nations statistics, the World Bank is the only one—among 30 international agencies and institutions—that has conducted actual assessments and evaluations of project impacts on the environment since October 15, 1989. The Bank requires the examination of all proposed investment projects, which has led to the redesign of many projects. For example, in the flood control project in the "Lower Guayas" region of Ecuador, the route of a flood control canal was altered to avoid threatening the water supply of the horned screamer bird known as "Kamichi," as well as the last dry tropical forest in western Ecuador.

Due to the difficulty of assessment, there can be bias against environmental projects. Specifically, conventional project analysis techniques tend to reinforce a degree of short-sightedness among government decision-makers. The economic justification for projects and policies is based on comparing benefits and costs. Even if the effects of projects are accurately predicted, cost-benefit analysis has

significant shortcomings because it requires making important value judgments about long-term effects, such as deforestation or the urgent extinction of a certain animal species.

These types of difficulties exist even in assessing simpler projects, but they become more urgent when complex environmental impacts are involved. In such cases, the problems of evaluation metrics are most pronounced, such as the welfare of future generations, irreversible damage, and externalities.

Third Section: The Polluter Pays Principle

Article 16 of the United Nations Declaration on Environment and Development stipulates that states must adopt the principle of the "cost of environmental protection," by using economic instruments that ensure the polluter bears the expenses of pollution resulting from their activities, provided that this does not hinder international trade or undermine investment attractiveness.³⁵

In the same context, the Algerian legislator adopted this approach through Article 3 of Law No. 03-10 related to environmental protection within the framework of sustainable development. The "polluter pays" principle is defined as the principle that obliges anyone who causes or is likely to cause environmental harm through their activity to bear all costs of preventing or reducing pollution, in addition to the expenses of repairing environmental damage and restoring the affected environments to their original state. This principle is practically embodied through imposing environmental fees, setting strict standards, and adopting compensation mechanisms.³⁶

This principle primarily aims to place the social and financial burden of pollution on the polluter, which serves as an incentive to adopt cleaner and less harmful technologies for the environment. It also acts as a financial deterrent against polluting behaviors.³⁷

Accordingly, the "polluter pays" principle is considered an effective tool for financing environmental damage repair processes. It is not limited to compensating personal damages but also includes compensation for tangible environmental damages, giving it a distinctive character within the modern environmental legal framework. This principle falls under environmental taxation, taking the form of environmental fees such as the "incentive fee to avoid waste storage," including fees imposed on healthcare waste generated by treatment activities, estimated at 24,000 Algerian dinars per ton.³⁸

Second Section: Environmental Protection in Algeria

First Branch: Legislative Support

First: Law 01-20

Law No. 01-20 dated December 12, 2001, relating to spatial planning, is considered the first Algerian legislative text to incorporate the concept of sustainable development within its provisions. This law concerns the definition of the major guidelines and public policies for planning and developing the national territory in a balanced and sustainable manner.

This legislative text establishes a strategic vision based on harmonious development across the various regions of the country, through choices that take into account geographical, economic, social, and environmental specificities, leading to a rational distribution of activities and population within an organized and coherent national space.³⁹

and coherent.

Although this law did not explicitly define the term "sustainable development," it embodied its essence through the objectives set out in the national spatial planning policy. Article 3 states that the purpose of spatial planning is to "achieve harmonious and sustainable development of the national territory based on the rational exploitation of resources and regional specificities." This implies that the legislator aimed to achieve development that considers spatial justice and economic efficiency, without compromising the principle of protecting natural and cultural resources and ensuring the rights of future generations.⁴⁰ This approach demonstrates that Algeria began early to integrate the dimension of sustainability into public policies in a manner consistent with international reports and principles, especially the 1987 Brundtland Report, which defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs," as well as the 1992 Rio Declaration on the responsibility of states to protect the environment within their development plans.⁴¹

It is also worth noting that this law has been implemented through the National Spatial Planning Guidance Document (SNAT 2025), which clearly enshrines the principles of sustainable development in

sectoral policies and links the economic, social, and environmental dimensions in national spatial planning, emphasizing the rational use of resources, promoting decentralization, and ensuring equity in wealth distribution. ⁴²

Several researchers have regarded this law as a qualitative leap in integrating sustainability into the national legal framework. Some consider it the first attempt to establish long-term planning that incorporates the environmental dimension within development requirements. For instance, researcher Abdelkader Zerouki, in his study on the impact of spatial planning on sustainable development, confirmed that this law is an effective tool to reduce regional disparities and achieve a balance between resource exploitation and protection. ⁴³

Second: Law 03-10

Law No. 03-10⁴⁴ relating to environmental protection within the framework of sustainable development explicitly enshrines the precautionary principle in Article 3, paragraph 6, which states:

"The absence of adequate technologies, considering the available scientific and technical knowledge, should not constitute an obstacle to taking effective and proportionate measures aimed at preventing serious environmental damage, provided that this is done at a reasonable economic cost."

The other principles set forth in the law reinforce this approach. For example, the principle of information and participation strengthens the precautionary principle by encouraging the involvement of citizens in preliminary procedures related to decision-making that may negatively affect the environment.

As for the "polluter pays" principle, it likewise emphasizes the importance of pollution prevention as an effective tool for environmental protection and reiterates the need not to delay effective measures that could prevent serious environmental damage, in line with the spirit of the precautionary principle.

Article 4 of the law specifically establishes a system for environmental impact assessment of development projects, which applies to all fixed installations, factories, and technical works that may have a direct or indirect, immediate or future impact on the environment. These assessments are conducted through either detailed or summary studies, depending on the nature of the project.

To prevent environmental risks arising from the operation of classified establishments, the legislator created a specific legal system requiring prior authorization for these establishments from the competent authorities, such as the Minister of Environment, the relevant minister, the wali (governor), or the president of the municipal people's assembly.

Chapter Three of the law contains preventive provisions for protecting various components of the environment, including biodiversity, air, water, soil, desert ecosystems, and living habitats. Meanwhile, Chapter Four addresses the protection of the environment from the harmful effects of chemical substances and noise pollution.

In line with the precautionary principle, regulatory texts have been issued to clarify its practical application, including Executive Decree No. 06-02,10. This -which implements Article 10 of Law 03 ⁴⁵ decree sets maximum limits for air pollution levels, along with qualitative objectives aimed at protecting the environment and human health. In the event these levels are exceeded, the relevant wali (governor) is obliged to take necessary measures to reduce polluting activities.

Also issued was Executive Decree No. 06-141,⁴⁶ which defines the maximum allowable values for industrial liquid discharges and requires establishments to ensure their industrial effluents comply with the values specified in the annexes of the decree, in order to preserve aquatic environments.

In the industrial sector, Executive Decree No 198⁴⁷-06was introduced to regulate classified establishments for environmental protection. It imposed strict measures related to declaring the nature of the activity and materials used, in addition to mandating a risk assessment and a public inquiry that enables citizens to participate by expressing their opinions about the project to be implemented.

Second Section: Institutional Support

Since the beginning of the third millennium, Algeria has sought to build an integrated institutional system dedicated to environmental protection and the realization of sustainable development requirements. This has been achieved through the establishment of specialized bodies with administrative and financial independence, enabling the monitoring of environmental policies and the implementation of relevant international commitments. Among the most prominent of these bodies are:

First: The National Observatory for Environment and Sustainable Development

The National Observatory for Environment and Sustainable Development is a public institution with an industrial and commercial nature, possessing legal personality and financial independence. It was established by Executive Decree No. 02-439 dated December 24, 2002. It has been entrusted with strategic tasks, foremost among which is the establishment of networks for monitoring and measuring environmental pollution, monitoring natural environments, collecting environmental, scientific, technical, and statistical information, processing it, and disseminating it. It is also responsible for gathering data related to the environment and sustainable development from institutions and specialized bodies at the national level, and distributing it across various administrative and scientific levels.

The Observatory is managed by a Board of Directors and a General Director, supported by a Scientific Council that provides opinions regarding research themes and studies, scientific cooperation programs, as well as methods and techniques for collecting and processing environmental data, thereby granting it a central role in shaping public environmental policies.⁴⁸

Second: The National Waste Agency

The National Waste Agency is a public institution with an industrial and commercial nature, established by Executive Decree No. 02-175 dated May 20, 2002. It has legal personality and financial independence. This agency is subject to administrative law in its relations with the state, while it is treated as a commercial entity in its dealings with others. This dual nature grants it managerial flexibility and operational efficiency in waste management.

The Agency's responsibilities include developing activities related to waste sorting, treatment, and recovery, as well as providing technical support to local communities in this field. Additionally, it has established a national waste information bank to regulate and monitor the environmental situation related to the accumulation of industrial and household waste.⁴⁹

Third: The National Coastal Conservancy

The National Coastal Conservancy was established under the provisions of Law No. 02-02 dated February 5, 2002, concerning the protection and development of the coast. It is a public body entrusted with implementing the national policy for the protection and sustainable development of the coastal strip. It oversees the preparation of comprehensive maps of coastal areas, including human settlements and natural spaces.

This conservancy prepares coastal planning schemes within coastal municipalities to protect them from uncontrolled exploitation. It also conducts periodic analyses of bathing waters and publishes the results for the public. The law grants it the authority to designate certain areas as threatened beaches or nature reserves, and to prohibit construction or establishment of facilities on them, especially in fragile or erosion-prone zones.⁵⁰

Fourth: The National Agency for Geology and Mining Control

The National Agency for Geology and Mining Control is an independent administrative authority established by Law No. 01-10 dated July 3, 2001, concerning mining law. It has been assigned strategic tasks in managing and exploiting geological resources, ensuring a balance between natural resource exploitation and environmental protection.

The Agency's tasks include monitoring the extent to which mining companies comply with proper mining practices, overseeing the implementation of industrial safety and occupational health regulations, as well as exercising mining police authority and inspecting violations. The Agency also establishes mechanisms

to monitor the environmental impact of mining activities and ensures that investors adhere to the environmental standards specified in legal and regulatory texts.⁵¹

These four institutions represent effective tools within Algeria's environmental governance system. They have contributed to realizing sustainable development goals through monitoring, information gathering, supporting local authorities, and establishing observation networks. Nevertheless, there remains a need to further activate their roles through institutional coordination, increasing human and technical resources, and effectively consolidating their financial and administrative independence to enhance their effectiveness.

Conclusion

In light of the above analysis of international and national mechanisms for environmental protection, the following conclusions can be drawn, along with a set of legal and institutional recommendations:

First: Conclusions

1. At the international level:

International agreements and conferences, from the Stockholm Conference (1972) to the Earth Summit in Rio de Janeiro (1992) and subsequent events, have contributed to establishing general rules for environmental protection. The most important among these are the precautionary principle, the polluter pays principle, and environmental impact assessment of projects.

Intergovernmental international organizations such as the United Nations Environment Programme (UNEP) and the World Bank have played a pivotal role in raising environmental awareness and providing technical and financial support to developing countries.

International non-governmental organizations, such as Greenpeace and the World Wildlife Fund (WWF), have contributed to pushing for stricter environmental policies and actively participated in global environmental monitoring and debate.

2. At the level of international law:

Legal instruments, including international agreements, treaties, and general principles, have formed the legal framework for countries worldwide, many of which have incorporated these principles into their national laws.

The precautionary principle is among the most prominent of these principles, allowing countries to prevent activities with potential environmental risks even in the absence of full scientific certainty.

As for the polluter pays principle, it has enabled the imposition of financial responsibility on those causing pollution, establishing an effective deterrent and preventive mechanism.

3. At the national level (Algeria):

Algeria has adopted an advanced legislative approach through the enactment of Law No. 03-10 related to environmental protection within the framework of sustainable development, as well as Law No. 01-20 concerning spatial planning.

These laws have contributed to codifying international principles within the national environmental framework, particularly with regard to environmental impact assessment, the precautionary principle, and the polluter pays principle.

At the institutional level, specialized executive bodies have been established, the most prominent of which are:

- The National Observatory for Environment and Sustainable Development
- The National Waste Agency
- The National Coastal Authority
- The National Agency for Geology and Mining Control

These institutions play a fundamental role in collecting environmental data, monitoring polluting activities, and implementing public policies for environmental protection.

Recommendations

1. Enhance the effectiveness of international environmental treaties by obliging states to comply with their commitments and linking agreements to more effective legal monitoring and follow-up mechanisms.

2. Support international organizations and expand cooperation between them and developing countries, especially regarding the transfer of environmental technology and strengthening institutional capacities.
3. Broaden the application of the precautionary principle and environmental impact assessments to include all public and private projects without exception, and activate transparent monitoring mechanisms.
4. Update Algerian national legal texts to keep pace with developments in international environmental law, while strengthening enforcement and deterrence mechanisms.
5. Strengthen the financial and human independence of national environmental institutions to ensure their ability to perform their duties efficiently and effectively address environmental degradation.
6. Intensify environmental awareness programs and education on environmental citizenship at all levels of education, and integrate civil society into environmental governance policies.

Protecting the environment is no longer a legislative luxury but an existential necessity requiring combined international and national efforts, both legal and institutional. Achieving sustainable development depends on serious political will, broad societal participation, and effective implementation of legal and administrative mechanisms that ensure a balance between economic growth and environmental preservation for future generations.

United Nations Conference on the Human Environment, Stockholm 1972. ¹

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⁵ United Nations Conference on Environment and Development, Rio de Janeiro, 1992.

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