

**Environmental Protection Through Legislation and Economic Mechanisms from the
Perspective of Sustainable Development in Algeria**

حماية البيئة عبر التشريعات والآليات الاقتصادية من منظور التنمية المستدامة في الجزائر

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Abstract:

Global environmental projections underscore that demographic expansion continues to escalate, leading to the amplification of consumption patterns that surpass the availability of non-renewable natural resources. This phenomenon has intensified environmental challenges to levels that the ecosystem can no longer sustain. This study examines the legal frameworks and economic instruments that contribute to the preservation of the environment and the ecological system, while promoting the judicious use of natural resources. Such measures are critical to meeting the current and future needs of individuals and societies, thereby establishing equilibrium between the imperatives of sustainable development and environmental protection. Employing a descriptive and critical methodology, this research identifies and evaluates the strategies and environmental laws implemented by the Algerian government. The study concludes with the imperative to expand environmental cultural awareness and explore mechanisms that enhance the adherence to and implementation of environmental standards.

Keywords: Non-Renewable Resources, Environment, Sustainable Development, Environmental Protection, Environmental Laws.

Jel Classification Codes : Q3, F64, Q01, K32.

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I. Introduction:

The rapid acceleration of economic growth alongside an increase in human and industrial activities has intensified interactions with the environment, leading to pronounced environmental challenges at both global and local scales. These challenges include the depletion of natural resources, escalating pollution rates, reduction of green spaces and forested areas, and a marked decline in biodiversity. Additionally, inadequate control of waste management and ineffective treatment practices pose significant threats to the future of life on Earth, disrupting the natural equilibrium. This critical situation has necessitated the emergence of new economic methodologies framed within sustainable development, requiring a well-structured plan for their effective implementation.

In recognition of the imperative for sustainable development, Algeria has made concerted efforts to modify and rationalize human consumption behaviors and to foster environmental knowledge and culture among individuals and communities. This strategic alignment aims to establish harmony and compatibility between environmental elements and the developmental goals outlined. In response to these pressing challenges and the critical necessity to prioritize environmental considerations, Algeria has instituted a series of measures and mechanisms, formulating strategies and policies aimed at preserving the environment and mitigating current and future environmental disruptions and pollution levels. These initiatives are designed to secure natural resources for future generations.

Key initiatives include the enactment of specific laws and decrees, beginning with Environmental Law No. 83/03 in 1983, followed by a subsequent law that repealed the initial one, Law No. 03/10, issued on July 19, 2003, which pertains to environmental protection within the context of sustainable development. Additionally, a suite of economic instruments, including taxation and environmental fees, has been adopted to influence environmental behaviors positively and mitigate environmental issues. Organizations and specialized administrative structures have been established to implement these laws and oversee the collection of environmental taxes. These fiscal measures are considered crucial financial resources that may facilitate the enhancement of sustainable environmental behaviors.

Through the discussion presented, the central question of the research paper is formulated as follows:

- What are the tools and mechanisms adopted for environmental protection in Algeria as part of the efforts to achieve sustainable development?

Building on this central question, we posited the following hypotheses:

- Environmental protection is a fundamental element for achieving sustainable development.
- The enactment of mandatory environmental legislation is essential for ensuring environmental protection and sustainability.

Study Objectives:

This study aims to comprehensively address the research problem by highlighting the following:

- The historical development of the term and concept of sustainable development.
- The environment and environmental problems in Algeria, in addition to the legal mechanisms that the Algerian legislator has put in place for environmental protection.
- The economic tools that will enhance the move towards sustainable development.

- The importance of environmental taxes and fees in achieving environmental sustainability.

Methodology:

To analyze the study topic, a descriptive approach will be used, relying on the collection of information and data to study and analyze them. This will identify the legal mechanisms and economic tools for environmental protection within the framework of sustainable development in Algeria.

I.1 Previous Studies:

- Study by Walid Aabi, Ibrahim Achouri, Samira Moumen, 2019, titled "*Mechanisms and Tools for Environmental Protection in Algeria from the Perspective of Sustainable Development*": This study aimed to analyze the evolution of the legal and institutional system for environmental protection in Algeria by reviewing the main stages of this evolution. The study concluded that the continued environmental degradation in Algeria has compelled the Algerian legislator to establish a set of laws aimed at improving urban and environmental management to confront environmental challenges and achieve sustainable development.
- Study by Youssef Hanka, Saleh Hamidatou, 2023, titled "*Environmental Taxes as a Tool for Directing Environmental Behavior in Algeria*": This study aimed to illuminate one of the economic tools for environmental protection, namely environmental taxes, which are considered effective tools for preserving the environment from pollution. The study found that imposing taxes would motivate polluters to modify their behaviors based on the principle of "the polluter pays," and collecting revenues could contribute to providing the necessary funding to address the effects of pollution and enhance environmental protection.

I.2 The Theoretical Framework of Sustainable Development:

I.2.1 Emergence of the Term 'Sustainable Development':

Given the widespread environmental imbalances, most countries around the world have recognized the importance of incorporating the environmental dimension into developmental strategies and mechanisms. Consequently, numerous seminars and conferences on the environment and sustainable development were held, which helped to establish the concept of sustainable development:

- **1968:** UNESCO organized the International Governmental Conference on the Protection of the Biosphere's Resources and their Rational Use, which led to the creation of the "Man and the Biosphere" program.
- **1972:** The United Nations Conference on the Human Environment was held, affirming the existence of mechanisms to achieve sustainable development while simultaneously preserving the environment. This gave rise to the United Nations Environment Programme (UNE) (Fawzia Barssouli and Lakhdar Si Mohamed, 2018).
- **Starting from 1987:** The world began grappling with numerous environmental challenges in 1987, a direct result of long-standing neglect of environmental considerations in developmental practices. This situation necessitated a search for innovative developmental alternatives aimed at resolving these pervasive issues.

Global efforts intensified, coalescing around the emergent concept of sustainable development, first prominently articulated in the "World Commission on Environment and Development" report, widely known as the Brundtland Report, and titled "Our Common Future." Regarded as one of the most significant documents of the twentieth century, this report, after thorough studies on addressing both environmental and development challenges, asserted the necessity to reorganize economic and human activities to ensure the continuity of life on Earth. Sustainable development within this context was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Samir Ben Ayach and Mourad Hadjaj, 2015).

- **1992 Earth Summit in Rio de Janeiro:** This summit, held in Brazil in July 1992, was aimed at protecting the Earth from environmental disasters by finding essential tools for mitigating environmental degradation and conserving natural resources. Gathering representatives from 178 countries, including more than 100 heads of state (Abdel Aziz Kassim Mouharib, 2011), the conference propelled the concept of sustainable development into global fame, emphasizing that environmental protection is integral to the development process and facilitating the establishment of an international economic system that promotes economic growth at all levels.
- **Copenhagen Summit 1995:** The World Summit for Social Development, focused on addressing social issues such as poverty, enhancing employment opportunities, and providing universal access to education and health services. It also stressed gender equality and support for development programs in less developed countries. A subsequent meeting in Bellagio, Italy, in 1996, articulated ten principles for achieving sustainability. The first principle emphasized establishing a clear vision for sustainable development that could be translated into actionable goals. The remaining principles promoted inclusivity and stakeholder integration in sustainability efforts, with mechanisms to ensure the continuity of these efforts and the sustainable vision (Ali Bayzid, 2022).
- **New York 2000: The Millennium Conference** stressed the need for countries to embrace sustainable development principles and integrate them within their developmental policies and programs, enhancing the balance between economic growth and environmental sustainability.
- **World Summit on Sustainable Development Johannesburg 2002:** Held in South Africa to mark the 10th anniversary of the Earth Summit in Rio de Janeiro, this summit underscored the need to protect the environment, eradicate poverty, address health issues, and work towards reducing the number of people lacking access to clean and safe drinking water. It also highlighted the importance of altering production and consumption patterns (Medhat Abou al-Nasr and Yasmin Medhat Mohamed, 2017). Sustainable development was defined at this conference as "development that meets the needs of the present without compromising the ability of future generations to meet their needs or development that uses natural resources without partially or completely depleting or destroying them" (Nasser Mourad, 2009).
- **United Nations Conference on Sustainable Development 2012 (Rio+20):** This conference focused on the green economy as a crucial means to achieve sustainable development goals (Abdallah Abderrahman Al-Baridi, 2015).

I.2.2 Other Definitions of Sustainable Development:

Economist Robert Solow, Nobel Laureate in Economics in 1989, defines sustainable development as not impairing the productive capacity of future generations, leaving it in the condition inherited by the current generation. He further noted that an analysis of sustainability should consider not only the resources used today or those left for future generations but also the quality of the environment we pass on, including productive energy, factories, technology, and more (Boumediene Tachma, 2016).

According to Webster's Dictionary, sustainable development is defined as "development that uses natural resources without allowing their depletion or destruction, either partially or completely" (Tahani Mohamed Hassan Moussa, 2023).

The Algerian legislator defines it in Article 4 of Law No. 03-10 as sustainable development meaning "the reconciliation between sustainable social and economic development and environmental protection, i.e., integrating the environmental dimension in a development framework that ensures the needs of the present and future generations are met."

I.2.3 Dimensions of Sustainable Development:

Sustainable development extends beyond environmental concerns to encompass economic and social dimensions, forming a triad of interlinked and interacting components within a framework that promotes disciplined and wise resource use.

A. Economic Dimension:

Sustainability in the economic realm involves enhancing and improving economic welfare over an extended period by delivering high-quality life components such as food, housing, health, and education. This dimension aims at economic growth through:

- Increasing the efficiency of capital and production elements.
- Optimal and rational exploitation of resources to satisfy current needs and conserve them for future generations, thereby achieving economic justice and ensuring the continuity of development.
- Enhancing competitiveness and productivity across all economic sectors (Minat Allah Tarek El-Rifa'i Abdel Maksoud, 2024).

B. Social Dimension:

This aspect of sustainability focuses on eradicating poverty, reducing social exclusion, and improving living standards as essential elements for the continuation of development. It emphasizes the human aspect by:

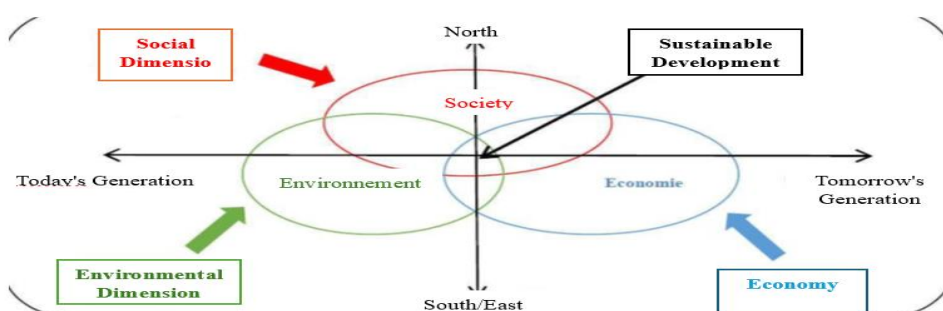
- Providing employment opportunities and ensuring fair distribution of income and wealth.
- Addressing women's issues and their participation in the developmental process.
- Achieving population growth stability and managing urban migration, while engaging people in the development process.
- Enhancing the efficiency of human resource utilization.

C. Environmental Dimension:

The environmental facet of sustainable development emphasizes respecting ecological limits, acknowledging that each ecosystem has specific consumption and depletion thresholds that should not be exceeded to avoid ecosystem damage. It is crucial to preserve agricultural lands, water resources, and exert additional efforts to sustain animal and plant wealth, and adopt modern strategies to protect the ozone layer and mitigate global warming (Larbi Hadjam, Samiha Tari, 2019).

These dimensions collectively aim to protect the environment and conserve natural resources from depletion and exhaustion while reducing pollution and adapting to climate changes. Achieving these goals requires concerted and intensified efforts at both local and global levels. These dimensions can be summarized as follows:

Figure 1: Dimensions of Sustainable Development



Source: (Ali Bayzid, 2022, p. 279)

I.2.4 Goals of Sustainable Development:

Sustainability has evolved into a widely recognized intellectual framework globally. In 2000, the United Nations endorsed the Millennium Declaration, which articulated eight development goals centered around human dignity, gender equality, justice, and the eradication of poverty, hunger, and disease. Global and international efforts have significantly advanced these goals, notably enhancing living standards and reducing poverty rates in many countries. There has been a marked decrease in child mortality rates under fifteen, and treatment plans have been improved, leading to reduced malaria mortality rates.

As the deadline to achieve the Millennium Development Goals approached, UN member states assessed the situation and worked towards establishing broader goals. During the United Nations Conference on Sustainable Development in Rio de Janeiro, known as "Rio+20," a team was formed to develop these new goals. By 2015 in New York, at the United Nations conference titled "Transforming Our World," the "2030 Agenda for Sustainable Development" was endorsed by over 150 heads of state. This plan introduced 17 goals and 169 targets, designed to be integrated and interconnected to achieve a required balance across the economic, environmental, and social dimensions.

The detailed objectives of the "2030 Agenda for Sustainable Development" include:

- Eliminate poverty in all its forms.
- Achieve food security and promote sustainable agriculture.
- Ensure excellent health and promote social well-being.
- Enhance the quality of education and provide learning opportunities for all societal classes.

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- Establish the principle of gender equality and preserve the rights of women and children.
- Provide clean water for everyone.
- Ensure access to renewable energy for all (Walid Hassan Abdel Bari, 2015).
- Encourage economic growth and provide decent jobs for everyone capable of working.
- Establish sustainable industrialization based on the foundations of innovation and creativity.
- Reduce disparities within countries.
- Establish cities that ensure safe living while considering sustainability in all its aspects.
- Ensure sustainable consumption and production patterns.
- Take urgent action to combat climate change.
- Care for the seas, oceans, and living organisms.
- Preserve and restore ecosystems, protect forests, and combat desertification.
- Work towards establishing peaceful communities and achieving international peace.
- Enhance and develop mechanisms for implementation and deepen global partnerships to achieve sustainable development efficiently and inclusively.

Figure No. 02: Goals of Sustainable Development.



Source: Available on the United Nations website, accessed on 05/11/2024 at 14:25 /(www.un.org/sustainabledevelopment/sustainable-development-goals/., 2024)

5. Characteristics of Sustainable Development:

- Sustainable development seeks to protect the right of future generations to both renewable and non-renewable natural resources.
- It is based on the principle of achieving justice between current and future generations and addresses various social strata, especially women and children.
- It focuses primarily on meeting the needs of the poor to reduce global poverty rates and achieve social and economic well-being.
- It pays significant attention to human resource development, striving to preserve these resources, as its success is linked to the efficiency of using these resources.

- It achieves environmental sustainability through the conservation of all environmental elements.
- It is characterized by inclusiveness and integration, respecting the rights of every individual in society and striving to preserve their political, economic, and social rights.
- It is dynamic, enabling communities to exploit available opportunities and requiring cooperation in developing development plans. It does not stop at a certain level of development but aspires to reach higher levels in the future (Kaddour Charki Ibrahim, 2023).

I.3 The Nature of the Environment and Its Problems

I.3.1 Definition of the Environment:

A. In language:

The term 'environment' originates from Greek, meaning 'home' or 'house.' The related term 'ecology' pertains to achieving balance among living organisms and their diverse characteristics. Disruptions in this balance can lead to significant issues such as pollution, natural resource depletion, and biodiversity loss. 'Environment' as a noun is derived from the verb 'to settle,' historically denoting residence, as used in the concise dictionary definition, "someone settled in a home."

This concept is also reflected in the Holy Quran, "And remember when He made you successors after 'Ad and settled you in the land, you take palaces from its plains and carve out mountains as homes. Then remember the favors of Allah and do not go about the earth corrupting" (The Holy Quran) (Al-Meliji Abderraouf Saleh, 2021).

B. Technically:

The term 'environment' encompasses various definitions by researchers and scientists, but generally, it refers to the natural setting that supports human life and provides essential elements for economic and social existence, such as food, medicine, and shelter. This concept is historically and ecologically significant, touching upon ecological, social, economic, and historical facets. Defined at the 1972 Stockholm Conference as "a collection of natural, social, and cultural systems in which humans and other beings live and from which they derive their sustenance and perform their activities" (Mohamed Saleh Cheikh, 2022; Mustafa Youssef Kafi, 2013).

The Algerian law, under Article 4 of Law 03-10 dated 19 July 2003, describes the environment as "a collection of biotic and abiotic natural resources such as water, air, climate, animals, plants, including genetic heritage, and interaction patterns between these elements, as well as natural landscapes and landmarks."

I.3.2 Environmental Problems:

A. Population Explosion Issue:

This problem arises from the disparity between population growth rates and available resources, compounded by the inability of developing countries' governments to provide essentials for daily life such as food, education, health services, and job opportunities. This ongoing inequity exacerbates human suffering as populations continue to grow, placing increased pressure on already strained resources.

B. Environmental Pollution:

Environmental pollution denotes undesirable alterations in the environment caused by human activities, which modify the chemical and biological elements of the environment, thereby diminishing living standards. These changes impact the natural characteristics of environmental components such as air, water, and soil, and result from the misuse of these components.

Air pollution, for instance, manifests through gases emitted by vehicles and various industries, which also contaminate water bodies, particularly when these facilities are situated near waterways such as seas and dams. Soil pollution, encompassing desertification, deforestation, and the disposal of agricultural waste, occurs when toxic chemicals like pesticides and industrial waste permeate the soil, altering its chemical and biological constitution, thus degrading its fertility and eroding its productive capacity (Mouna Twahriya, 2017). Pollution can disrupt the ecological system by increasing or decreasing the presence of an element, leading to instability.

C. Environmental Resource Depletion Issue:

Resource depletion adversely impacts the environment, compromising the functional role of resources within the ecosystem. The severity of this impact escalates with disturbances in the ecosystem's balance. The dimensions of this issue expand and intertwine both locally and globally, particularly with the widespread adoption of modern technologies characteristic of the twentieth century.

I.3.3 Causes of Environmental Degradation in Algeria:

- Destruction of vegetation cover and degradation of plant diversity due to land use for residential or industrial construction.
- Irrational exploitation of land leading to soil depletion and degradation of plant wealth.
- A pervasive lack of environmental awareness coupled with the belief that sustainable development cannot be achieved while preserving the environment.
- The inability to balance urban and rural areas, leading to the degradation of social services necessary for environmental protection (Ben Aya Alia, Ben Aya Fatima, 2024).
- A shortage of human skills specialized in contemporary technologies and an inability to benefit from advanced research, compounded by a lack of focus on environmental topics in educational institutions (Latrech Fairouz, 2023).
- The proliferation of oil refineries, which poses risks to seas and contributes to air pollution through the emission of toxic gases (Ghania Ibrir, 2020-2021).

II.1 Algeria's Efforts in Activating the Relationship Between the Environment and Sustainable Development:

II.1.1 Legal Mechanisms for Environmental Protection:

The international community recognizes the environmental challenges that necessitate collective efforts to address and mitigate them, considering the environment a human heritage and sustainable development a shared economic and social objective. Following the Stockholm Conference, like other Third World countries, Algeria intensified its focus on

environmental issues, particularly with the emergence of environmental consciousness in the early 1970s.

Before this period, the focus was primarily on establishing heavy industries to foster national economic growth, which adversely impacted the environment and led to imbalances due to the irrational use of natural resources, resulting in their depletion. The commitment to environmental issues in Algeria materialized through the enactment of laws and decrees and the establishment of an institutional structure dedicated to environmental protection.

The initial body dedicated to environmental protection in Algeria was established in 1974, known as the National Council for the Environment. This was followed by the introduction of the first comprehensive environmental law, Law 83-03, on February 5, 1983, which detailed the concept and objectives of Algeria's environmental strategy and was a pioneer in its time (Samira Lazar, 2021).

After two decades, this law was repealed and replaced by Law 03-10 on July 19, 2003, which concerned the environment, sustainable development, and the planning of environmental activities. This law marked a significant step in reinforcing Algeria's commitment to enhancing the relationship between the environment and sustainable development, particularly in response to the increasing environmental challenges and risks (Senouci Khenich, 2005). The Algerian government and legislator have recognized environmental protection as a strategic priority for ensuring sustainable development. Article 02 of this law outlines a series of objectives and measures aimed at safeguarding natural resources from depletion and exhaustion, consistent with the principles of sustainable development, including:

- Establishing foundational principles and frameworks for environmental management and promoting the rational and wise use of natural resources, including the adoption of clean technological techniques.
- Enhancing national sustainable development through the improvement of living and working conditions.
- Protecting against various forms of pollution and environmental damage to preserve natural elements.
- Restoring damaged ecosystems (Boukhalfa Abdelkarim, 2020).
- Enhancing the effectiveness of environmental media and intensifying community participation in implementing policies aimed at achieving environmental sustainability.

Local municipal and provincial authorities play a crucial role in environmental affairs due to their close relationship with the community, which enables them to directly engage with and understand the environmental issues faced by citizens. This role is defined by the provincial law of 1990, particularly Article 58, which outlines the competencies of the provincial people's council, including economic, social, and cultural development and regional planning. The new provincial law No. 12-07, dated February 21, 2012, expanded the powers of the governor, particularly in the domain of environmental sustainability, as specified in Articles 77, 33, and 01.

Municipal Law 90-08, issued on April 17, 1990, particularly Article 92, mandates obtaining prior approval from the municipal council before initiating any projects at the municipal sector level that might pose environmental risks or have negative implications. This was followed by the new municipal law No. 11-10, dated July 22, 2011, which introduced a

series of articles focused on environmental protection mechanisms, cleanliness of surroundings, and the support of nationally beneficial projects. It also established permanent committees concerned with environmental issues, notably in Articles 114, 109, 94, and 31.

II.1.2 Economic Mechanisms and Tools for Environmental Protection:

These mechanisms have proven their effectiveness in protecting the environment, reflecting on manufacturing costs and service provision, particularly affecting the market price of products. They consist of a set of incentivizing measures imposed by relevant authorities on industries that pollute the environment. These can be outlined as follows:

A. Pollution Cost Recovery:

This can be achieved through setting tariffs and imposing taxes on environmentally polluting activities and on any entity that harms the ecological system. It is also essential that they cover all expenses to prevent further environmental damage (Bachi Ahmed, 2003). This approach is based on the 'polluter pays' principle, a customary rule for initiating liability suits against those responsible for damage. This principle was adopted by the Organization for Economic Co-operation and Development (OECD) in 1972. To implement and reinforce this principle, a variety of tax levies, also known as green fees, have been introduced.

B. Selling Pollution Permits:

Countries issue permits that polluters can purchase, allowing them to emit a specific amount of pollution equivalent to the value of the permit. This system incentivizes companies to reduce emissions or face financial costs.

C. Expanding Private Ownership:

Environmental conservation can be encouraged by redistributing property rights, such as allocating rights to clean air and water to consumers. These rights allow holders to sell pollution permits without suffering personal harm, thus promoting responsible environmental management (Khaladi Soumia, 2013-2012).

There is a strong relationship between environmental taxation and sustainable development, as it is considered an effective means to achieve a balance between economic growth and social welfare on one hand, and environmental protection on the other. By imposing fees on polluting and environmentally harmful activities, governments encourage economic actors to adopt sustainable behaviors and bear the costs of their environmental impact. This approach directly impacts the dimensions of sustainable development:

- **Environmental Dimension:** Taxing polluting activities reduces the irrational use of natural resources and encourages companies to adopt production technologies that are considerate of environmental impacts. This helps preserve biodiversity and reduces emissions of harmful gases.
- **Economic Dimension:** Taxing companies increases the costs of industrial production, which spurs innovation in efficient resource utilization. The revenue generated from these taxes can be redirected to finance environmental projects.
- **Social Dimension:** Environmental taxation contributes to social justice by using the collected revenues to establish green infrastructure and provide renewable energies, thereby improving the welfare level, especially for the poorer segments of society (Toumi, 2022-2023).

II.1.3 Ministries and Bodies Responsible for Environmental Protection

A. Ministries Responsible for Environmental Protection:

Following the Stockholm Conference, Algeria, like other Third World countries, intensified its focus on environmental issues after the emergence of environmental awareness in the early 1970s. Previously, the emphasis had been on establishing heavy industries to boost national economic development, which often led to the irrational use of natural resources and subsequent environmental degradation.

The commitment to environmental affairs in Algeria was manifested through the enactment of laws and decrees and the establishment of an institutional framework dedicated to environmental protection. The first environmental protection body established was the National Council for the Environment in 1974. Moreover, the first comprehensive environmental law, Law 83-03 dated February 5, 1983, was pioneering in defining and advancing Algeria's environmental strategy (Samira Lazar, 2021).

This law was repealed 20 years later by Law 03-10, issued on July 19, 2003, which not only focused on the environment and sustainable development but also on planning environmental activities. This law reinforced Algeria's commitment to fostering the intricate relationship between the environment and sustainable development, particularly in light of increasing environmental challenges (Senouci Khenich, 2005). The Algerian government and legislator have declared environmental protection a strategic priority to ensure sustainable development and to solidify its underlying concept.

Establishing fundamental principles and frameworks for environmental management and promoting the rational and wise use of natural resources and reliance on clean technological techniques.

- Enhancing national sustainable development by improving living conditions and working environments.
- Protecting against various forms of pollution and environmental damage to ensure the preservation of its elements.
- Restoring damaged ecosystems (Boukhalfa Abdelkarim, 2020).
- Enhancing the effectiveness of environmental media and intensifying community participation in implementing policies aimed at achieving environmental sustainability.

Local municipal and provincial authorities play a crucial role in environmental affairs due to their close relationship with citizens, which enables them to understand and address the environmental problems they face. This relationship is governed by the provincial law of 1990, particularly Article 58, which focuses on the economic, social, and cultural development and regional planning of the province. This was further developed by the new provincial law No. 12-07, dated February 21, 2012, which expanded the governor's powers, especially in the area of environmental sustainability, as specified in Articles 77, 33, and 01.

Regarding municipal governance, the law 90-08 issued on April 17, 1990, specifically Article 92, mandates obtaining prior approval from the municipal council when initiating any projects at the municipal level that may pose environmental risks or have negative implications. Following this, the new municipal law No. 11-10 dated July 22, 2011, was enacted, which includes a series of articles concerning environmental protection mechanisms, cleanliness of surroundings, highlighting projects of national benefit, and the establishment of

permanent committees concerned with environmental issues, notably Articles 114, 109, 94, and 31.

B. Economic Mechanisms and Tools for Environmental Protection:

These mechanisms have proven effective in protecting the environment as they influence manufacturing costs and service provision, particularly affecting the market price of products. They consist of a set of incentive measures imposed by competent authorities on industries that pollute the environment and can be outlined as follows:

- **Pollution Cost Recovery:** This involves setting tariffs and imposing tax fees on polluting activities and any entity that damages the environmental system, covering all expenses to prevent further harmful damage to the environment (Bachi Ahmed, 2003). Based on the customary principle of the polluter pays, used to initiate liability lawsuits against the causers of damage, this principle was adopted by the Organization for Economic Co-operation and Development in 1972. To implement and enhance this principle, a series of tax fees, also known as green fees, emerged.
- **Selling Pollution Permits:** Each country issues permits that can be purchased by polluters, allowing them a certain amount of pollution equivalent to the value of the permit they benefit from.
- **Expanding Private Ownership:** The environment can be preserved by redistributing property rights through the allocation of rights to clean air and water to consumers, allowing them the possibility to sell pollution permits without causing them harm (Khaladi Soumia, 2013-2012).

Environmental taxation plays a pivotal role in sustainable development by effectively balancing economic growth and social welfare with environmental protection. By levying fees on activities that pollute and harm the environment, this taxation strategy compels economic actors to adopt sustainable practices and take financial responsibility for their environmental impacts. Such a policy not only curtails the irrational exploitation of natural resources but also prompts corporations to embrace cleaner production technologies. These technologies are essential for conserving biodiversity and minimizing the emission of harmful gases.

Furthermore, environmental taxes drive industrial innovation, fostering more efficient use of resources. The revenues collected from these taxes are crucial for funding environmental projects and, from a social viewpoint, are allocated to construct green infrastructure and supply renewable energy sources, thereby improving the welfare of all societal classes, especially the less privileged (Toumi, 2022-2023).

C. Ministries and Bodies Responsible for Environmental Protection

- Ministries Responsible for Environmental Protection:

Following the enactment of Law 83-03 on February 5, 1983, which includes environmental protection, there was an increased focus on environmental issues, highlighting the need for a dedicated ministry to address environmental challenges and mitigate degradation. The first central body concerned with the environment was the National Agency for the Environment, established under the supervision of the Secretary of State for Forests, Land Reclamation, and Environmental Protection.

In 1988, the responsibility for environmental matters was transferred to the Ministry of Research and Technology, reflecting the scientific and research-oriented nature of environmental issues. Over the years, the environmental portfolio moved from the Ministry of

National Education to the Ministry of Interior in 1994, and then to the Ministry of Public Works and Urban Planning. These shifts led to instability in environmental policies and ambiguity in the implementation of environmental strategies, necessitating the establishment of a specialized ministry.

In 2001, the Ministry of Regional Planning and Environment was created and later merged with the Ministry of Tourism to become the Ministry of Urban Planning, Environment, and Tourism. By 2010, tourism was separated from this ministry, renaming it the Ministry of Urban Planning and Environment. In 2015, environmental affairs were transferred to the Ministry of Environment and Renewable Energies, and in 2016 to the Ministry of Water Resources and Environment, eventually renamed in 2017 to the Ministry of Environment and Renewable Energies (Hadj Kadour Nafissa, Baknich Otman, 2023).

- **Bodies Responsible for Environmental Protection:**

Algeria has established central agencies tasked with managing specific environmental areas to alleviate pressure on the ministry and local communities, briefly summarized as follows:

- **National Agency for Waste Management:** This agency is charged with assisting local communities, analyzing waste-related information and data (Executive Decree 02/175 dated May 20, 2002, specifying the competences of the National Agency for Waste Management, Official Gazette No. 37, 2002).
- **National Conservatory for Coastal Management:** This body focuses on implementing the national policy for coastal protection in general and beaches in particular (Law No. 02/02 dated February 5, 2002, concerning coastal protection and enhancement, Official Gazette No. 1, 2002).
- **National Agency for Geology and Mining Surveillance:** This agency is concerned with geology and mining activities, particularly managing geological and mineral resources and protecting the environment from associated risks (Mining Law No. 01/10, Official Gazette No. 35, 2001).
- **National Observatory for Environment and Sustainable Development:** Its tasks include preparing maps of areas, measuring pollution levels, and gathering information and data related to the environment and sustainable development (Executive Decree No. 02/115 dated April 3, 2002, establishing the National Observatory for Environment and Sustainable Development, Official Gazette No. 22, April 3, 2002).
- **National Conservatory for Environmental Education:** Works on developing educational strategies in the field of the environment and enhancing awareness to preserve it, providing training to all stakeholders in the environmental field (Executive Decree No. 02/263 dated August 17, 2002, organizing the National Conservatory for Environmental Education, Official Gazette No. 74, 2002).

C. Development of the Environmental Taxation System in Algeria:

Algeria's experience in imposing environmental taxes is relatively recent. Following independence, the state prioritized economic and social development, often overlooking the environmental aspect. Additionally, the decline in oil prices during that era led to a deterioration in the financial situation of public economic institutions, weakening their performance and stability, which delayed the government's implementation of environmental taxes. This experience underwent two phases to reduce pollution:

- **First Phase:** In 1993, Algeria adopted environmental fees under Executive Decree No. 93-68, which sets the conditions for applying the fee on environmentally polluting activities, within the framework of Law No. 91-25, which includes the 1992 Finance Law, particularly Article 117, which stipulates the establishment of a fee imposed on activities that are polluting and hazardous to the environment (Harouchi Djeloul, 2021).
- **Second Phase:** This phase began with the Finance Law of 2000, which strengthened and increased the fees related to polluting and hazardous activities on the environment.

D. Taxes on Polluting or Hazardous Activities:

- Tax on Polluting and Hazardous Activities (TAPD)

The Tax on Polluting and Hazardous Activities (TAPD) was established by Article 117 of the 1992 Finance Law, pursuant to Law 91-25 dated December 18, 1991. This tax has been subsequently revised according to Article 88 of the Finance Law for the year 2020, aligned with Article 61 of Law 17-11 dated December 27, 2017. The tax rate is determined based on the licensing authority and the scale of the enterprise, with specific activities regulated as depicted in the following table:

Table 1: Tax Amount on Polluting or Hazardous Activities to the Environment

Activity Type	Amount (DZD)		Multiplier Coefficient
	Enterprise employs fewer than two workers	Enterprise employs more than two workers	
Enterprise employing less than two workers	6,000	27,000	1 point
Permit from the Mayor	9,000	60,000	2 points
Permit from the Governor	50,000	270,000	3 points
Permit from the Minister	68,000	360,000	4 points

Source: Compiled by researchers based on Article 88 of the Finance Law for the year 2020.

The multiplier coefficient, which ranges from 01 to 10, is used for each activity based on its nature and significance as well as the type and quantity of waste generated by the activity, which is determined by laws or regulatory statutes.

The tax due is calculated by multiplying the base amount of the tax by the multiplier coefficient to yield the final tax amount that must be paid for each activity.

The revenues from this tax are allocated as follows:

- 50% for the benefit of the state budget
- 50% for the benefit of the National Fund for the Environment and the Coast.

II.2 Taxes Related to Solid Waste:

Consisting of five taxes as follows:

A. Household Waste Tax:

This tax is imposed to enhance the budget of local communities and includes commercial premises and professional uses. The value of this tax is determined based on deliberations by the local council and is collected by the tax services for the benefit of the municipality at a 100% rate (Ajilani Ayachi, 2020). The tax amount was amended according to Article 67 of the Finance Law for the year 2022 as shown in the following table:

Table 2: Household Waste Tax

Use of Premises	Amount (DZD)
Residential use	2,000
Professional or commercial use or similar	10,000
Land prepared for camping and trailers	18,000
Industrial or commercial use	80,000

Source: Compiled by researchers based on the Finance Law for the year 2022.

These taxes aim to generate revenue from activities with high financial returns while alleviating the financial burden on residential premises, thereby achieving a balance between them.

B. Incentive Tax on Non-Storage of Waste Associated with Hospital and Medical Clinic Treatment Activities:

Classified under healthcare waste, this includes waste from diagnostic, monitoring, preventive and medical treatment activities in human and veterinary medicine. The amount is set at 60,000 DZD per ton according to Article 90 of the Finance Law for the year 2020 and is allocated as follows:

- 50% for the National Fund for the Environment and the Coast
- 20% for the benefit of municipalities
- 30% for the state budget.

C. Incentive Tax on Non-Storage of Special or Hazardous Industrial Waste:

This tax was stipulated by Article 203 of the Finance Law for the year 2002 and was enacted to encourage the non-hoarding of industrial waste. The tax amount is set at 30,000 DZD per ton according to Article 89 of the Finance Law for the year 2020, with revenues allocated as follows:

- 46% for the state budget
- 38% for the National Fund for the Environment and the Coast
- 16% for the benefit of municipalities.

II.3 Taxes Associated with Polluting Air Emissions:

A. Supplementary Tax on Industrial Air Pollution (TCPA):

This tax was established by Article 205 of the Finance Law of 2002 and was amended according to Article 91 of the Finance Law of 2020. It imposes a tax on emitted quantities that exceed permitted limits, calculated based on the annual rate and a coefficient ranging from 01 to 05 based on the extent of the exceedance.

Furthermore, the revenues from this tax are allocated according to a specific distribution mechanism set by Article 112 of the Finance Law of 2019 as follows (Finance Law 2019, Official Gazette No. 79, 2019):

- 35% to the Solidarity and Guarantee Fund for Local Communities.
- 34% to the state budget.
- 30% to the Special Solidarity Fund.
- 1% to the National Fund for the Environment and the Coast.

B. Taxes on Fuel and Petroleum Products:

Established by Article 38 of the Finance Law of 2002, it applies to premium/regular and leaded gasoline, with a tariff of one dinar per liter (Finance Law 2002, Official Gazette No. 79, 2002). This tax is distributed as follows:

- 50% to the National Fund for Roads and Highways.
- 50% to the National Fund for the Environment and Pollution Removal.

Table 3: Tax on Petroleum Products

Products	Tax (DZD)
LPG Fuel	1.00
Diesel	900.00
Unleaded Gasoline	1700.00
Regular Gasoline	1700.00
Premium Gasoline	1600.00

Source: Compiled by researchers based on the Finance Law 2020.

The scope of tax base establishment, liquidation, and collection, as well as dispute resolution rules applicable to VAT, has been expanded to include petroleum products.

II.4 Taxes Associated with Polluting Liquid Effluents:

A. Supplementary Tax on Industrial Wastewater:

Established based on Article 94 of the Finance Law of 2003 relative to the volume of discharged water and the cost of pollution caused by activities exceeding set limits (Report on the State and Future of the Environment in Algeria, 2005). It is calculated based on the annual rate established by Article 54 of the Finance Law 99-11 for the year 2000, with a multiplier from 1 to 5 based on the exceedance rate (Yousef Hanka, Saleh Hamidatou, 2023).

Revenues from this tax are distributed as follows:

- 34% to the state budget.
- 34% to municipalities.
- 16% to the National Fund for the Environment and the Coast.
- 16% to the National Water Fund.

II.5 Tax on Imported or Locally Manufactured Oils and Greases:

Established by Article 61 of the Finance Law for 2005, this tax is set at 37,000 DZD per ton of imported or locally manufactured oils, which generate used oils. Revenue allocations are as follows (Finance Law 2005, Official Gazette No. 85, 2005):

- 42% to the state budget.
- 34% to municipalities.
- 24% to the National Fund for the Environment and the Coast.

Despite the Algerian government's efforts through these taxes to combat environmentally harmful behaviors, the tax system still struggles to effectively achieve its intended goals due to:

- Allocation of tax revenues: According to the Finance Law of 2002, not all collected amounts are allocated for environmental protection and pollution control.
- Lack of transparency: The funds and bodies charged with collecting costs lack transparency and effectiveness.
- Performance contracts: Despite incentives provided by the Algerian government to economic institutions to adopt environmentally friendly behaviors and practices, participation remains limited (Walid Aabi, Ibrahim Achouri, Samira Momen, 2019).

III. Conclusion:

Our investigation into the topic demonstrates that environmental protection is crucial within the framework of sustainable development. Sustained economic and social progress is infeasible without due consideration for the environment, as ecological imbalances can compromise the gains already made. The necessity of environmental protection is acknowledged through the adoption of mechanisms and tools designed to minimize emissions and harmful practices.

Algeria has responded to the need for a balanced approach between sustainable development and environmental conservation by implementing a national strategy aimed at preserving the ecosystem and upholding the principles and objectives of sustainable development. This commitment is supported by a comprehensive legal framework, sufficient to mitigate ecological degradation and to enforce a variety of environmental taxes on diverse economic sectors, in accordance with scientific and technical standards for environmental protection. This enables the prudent utilization of natural resources and reduces emissions from industrial and urban activities.

The study highlights several critical findings:

Integrating the environment with sustainable development is crucial to ensure optimal and rational utilization of natural resources needed by the current and future generations.

- Environmental concern is an integral part of development strategies, which has enhanced the state's ability to address environmental imbalances and combat climate change and natural disasters. Therefore, achieving sustainable development has become a pressing necessity to establish advanced societies capable of managing their resources and environmental health for future generations.
- Algerian legislation has strengthened the relationship between environmental protection and sustainable development through laws and legislations aimed at achieving a balance between the economic, social, and environmental dimensions of sustainable development.
- Despite the Algerian government's efforts in the realm of environmental protection from a sustainable development perspective, some shortcomings have been recorded, which the state is addressing by focusing on the implementation of outlined strategies.

IV. Recommendations:

The key recommendations that can be drawn from this topic are:

- Work on expanding the reach of environmental awareness and culture starting from families, schools, and universities to the media, to actualize it effectively on the ground.
- Encourage the Algerian government to support those who present new proposals and ideas contributing to sustainable development.
- Focus on scientific research and conduct additional studies to explore effective mechanisms for environmental protection.
- Offer tax incentives to institutions adhering to sustainable environmental standards.
- Strengthen penalties for those who pursue development without regard for the environmental and biological systems.
- Explore ways to enhance the actual implementation of environmental standards in investment projects and develop environmentally friendly projects.
- Utilize environmental advantages as an incentive to support consumer behavior and expand the use of renewable energies.

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