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Local authorities (municipalities and wilayas) play a crucial role in implementing environmental policies at the local level due to their proximity to citizens and natural resources. Algerian legislation has assigned them several responsibilities in environmental protection, notably through Law No. 03-10 on environmental protection, Law No. 11-10 on municipalities, and Law No. 12-07 on wilayas. However, despite this legal framework, environmental challenges persist, raising questions about the effectiveness of their role.

Accordingly, this study addresses the following central research question:

What is the legal role of local authorities in protecting the environment and promoting sustainable development in Algeria?

To answer this question, the study is based on the following hypotheses:

- Algerian legislation defines the environmental responsibilities of local authorities.
- The effectiveness of these roles remains limited due to institutional, financial, and administrative constraints.

This study adopts a legal-analytical approach, based on the analysis of legislative and regulatory texts.

The importance of this study lies in highlighting the gap between legal provisions and their practical implementation, as well as proposing mechanisms to strengthen local environmental governance.

## 2. Conceptual Framework of Local Authorities and Sustainable Development

The relationship between local authorities and sustainable development has gained increasing importance in recent years due to the growing complexity of environmental, economic, and social challenges. Sustainable development, as a multidimensional concept, requires efficient and decentralized governance to address local needs and ensure the optimal use of resources. In this context, local authorities play a crucial role in implementing policies that promote environmental sustainability, economic growth, and social equity.

This section explores the foundational concepts of the environment and local authorities. The first part defines the environment by distinguishing between its natural and built components, while also considering how Algerian legislation conceptualizes it. The second part provides a comprehensive definition of local authorities, highlighting their legal and financial independence, administrative functions, and their role in fostering local governance and democracy.

### 2.1 :Definition of Environment

The environment is everything that surrounds humans, including water, air, seas, and other resources that people generally benefit from and enjoy. Researchers divide the environment into two main categories:

**2.1.1- The Natural Environment:** This includes all the phenomena that exist without human intervention, which precede human existence, such as water, air, soil, energy sources, plants, and animals.( Al-Raysouni,2008,p.17.)

**2.1.2 The Built Environment:** As the name suggests, this refers to the various structures created by humans, such as roads and buildings. It also refers to the area in which humans live and derive their basic life necessities, such as food, clothing, and shelter. In this space, humans interact and engage with others based on social systems like customs, values, ethics, and religions.( Al-Rifai,2009,p.09)

As for Algerian legislation, it defines the environment as consisting of natural, non-living, and living resources, such as air, the atmosphere, the earth's crust, plants, animals, including genetic heritage, and the interactions between these resources, as well as natural places, landscapes, and landmarks.( Law 03-10 , 2003,pp.6-9)

### 3. Definition of Local Authorities

Local authorities are independent bodies and geographic units divided from the state's territory, distributed across provinces and villages. They manage the affairs of these units using appropriate methods. They enjoy legal personality and broad financial independence from the central government, to the extent that they are often compared to local governments.( Marghad,2005,p-p.2-3)

It is important to note that the local administrative system has no relation to legislation or judiciary, as its work is confined to traditional functions in locally-based facilities.( Aoulmi,2010,p.259) Local governance includes traditional aspects of government: legislation, execution, and judiciary.

The reliance on the local administration system to implement democracy at the local level is linked to the increasing responsibilities of the state and the disparities between different regions of its territory.( Baha,2000,p.17)

Local authorities have several key characteristics:

**3.1Administrative Independence:** There must be independent bodies that possess all the necessary powers to distribute administrative functions between the government and local autonomous bodies, according to a monitoring system adopted by the central state authorities. One of the advantages of this independence is the realization of democratic principles by directly involving citizens in managing their public affairs, relieving the central administration of its many and varied tasks, and preventing delays. This accelerates decision-making related to local interests, thus addressing the needs and desires of citizens more effectively than central administration.

**3.2.Financial Independence:** Local authorities enjoy legal personality and financial independence, meaning they have dedicated financial resources that enable them to carry out their assigned tasks.( Mehna,2000,p.22.)

### 4.Definition of Sustainable Development

Algerian Law No. 03-10 defines sustainable development as “a concept that reconciles sustainable social and economic development with environmental protection within a framework that ensures the fulfillment of the needs of present and future generations.”( Souak,2008,p.112)

Furthermore, Principle 4 of the 1992 Rio de Janeiro Conference stated that, in order to achieve sustainable development, environmental protection must be an integral part of the development process and cannot be considered in isolation from it.( Hadhaka,2023)

From the above, it can be concluded that the essence and content of sustainable development rest on two fundamental principles:

**4.1- Ethical and Humanitarian:** It is impermissible to pursue activities that degrade or destroy the environment.

**4.2- Economic:** The natural resources within the environment constitute natural capital, which is a key element of the production process. Therefore, in any economic activity, humans must not deplete their true capital.( Sakhri,2017,p-p.108-112)

## 5. Environmental Issues in Algeria

Algeria faces growing environmental challenges that threaten its ecological balance and the sustainability of its natural resources, making environmental issues a strategic priority for the state. These challenges manifest in various crises, most notably water scarcity, pollution and waste accumulation, desertification, and land degradation, in addition to the ongoing deterioration of coastal and marine ecosystems.

The worsening of these issues is attributed to both natural and human factors, including climate change, unsustainable industrial and agricultural activities, and unbalanced population growth. These challenges necessitate the adoption of effective environmental policies to ensure sustainable development and the preservation of natural resources for future generations. Accordingly, this chapter examines the major environmental issues confronting Algeria, focusing on water-related challenges, waste and pollution, as well as desertification and land degradation, while also highlighting the efforts undertaken to address them.

### 5.1. Water Challenges in Algeria

Algeria faces increasing challenges related to the fragility and unequal distribution of water resources. The mobilization of surface water, including rainfall runoff and river flow, requires the construction of additional dams and water retention structures, which are costly and necessitate further infrastructure to regulate watercourses.( Dhibih,2012,p-p.186-189)

The country's annual water resources are estimated at 12.4 billion cubic meters, with surface water reserves accounting for 4.7 billion cubic meters and groundwater exploitation reaching 7.5 billion cubic meters. Of this amount, 2.5 billion ( Saidi,2011,p.27)

cubic meters are drawn from the northern regions, while 5 billion cubic meters come from the south. Additionally, non-conventional water resources contribute approximately 2 million cubic meters, meeting the needs of 17% of the population.

Algeria's total available water resources amount to 19.2 billion(Sakhri,2019,p-p.55-59) cubic meters, sourced from dams (33%), groundwater (50%), and desalination plants and treated wastewater (17%). This situation places Algeria below the international water scarcity threshold

of 1,000 cubic meters per capita annually, with the country's per capita water availability standing at only 500 cubic meters per year(Sakhri,2024)

Given these water-related challenges, which are influenced by both geographical and climatic factors, the Algerian state has been compelled to develop and implement national policies and strategies to ensure water security.

In addition to conventional water resources, Algeria has increasingly relied on seawater desalination as a strategic solution to water scarcity. However, this approach raises environmental concerns related to high energy consumption and the impact of brine discharge on marine ecosystems (Hadhaka, 2023).

## **5.2 Waste and Environmental Pollution**

Waste management poses a significant environmental challenge in Algeria, with waste generated from commercial establishments, households, industrial workshops, companies, hotels, and hospitals. The accumulation of waste leads to the spread of disease-carrying insects, while improper disposal methods, such as landfill dumping, contribute to various forms of pollution, including air, water, soil, and noise pollution.( Boudiaf,2006,p.116)

According to Law No. 01-19 on waste management, municipalities are legally responsible for the collection, transport, and disposal of household waste, as well as ensuring environmental hygiene at the local level.

The rapid population growth, coupled with an unbalanced demographic distribution that favors northern regions at the expense of the south, exacerbates environmental problems. Additionally, poverty remains a major obstacle to environmental sustainability, as it drives rural migration, unregulated construction, and the overexploitation of both renewable and non-renewable resources, such as soil, water, forests, and rangelands.( Sakhri,2025).

## **5.3 Desertification and Land Degradation**

Vast areas of Algeria are affected by desertification, threatening the future of agriculture, particularly in steppe regions. Land degradation is further exacerbated by soil erosion, which results from an imbalance between climatic conditions, vegetation cover, and human activities. This leads to a gradual reduction in plant cover in steppe areas, ultimately causing the complete loss of soil renewal capacity due to wind erosion(Sakhri,2025). Water erosion, on the other hand, primarily affects sloped lands and is one of the leading causes of land degradation in mountainous areas, where deforestation and the destruction of natural vegetation expose fragile soils to erosion. Western Algeria is the most affected, with 47% of total eroded lands, followed by central regions (27%) and eastern regions (26%)the most vulnerable areas include the Nisala, Beni Chougrane, Dhahra, Zaccar, and Ouarsenis mountain ranges. Since independence, Algeria has lost approximately 250,000 hectares of agricultural land due to erosion.

Recognizing the severity of desertification, Algeria relaunched the Green Dam initiative in December 2022, with plans extending until 2030. Over seven years, the Ministry of Agriculture allocated substantial funding for the project, which covers 13 provinces and 183 municipalities. The initiative aims to combat desertification and mitigate climate change effects, particularly in response to the devastating wildfires of 2021 and 2022, which burned extensive forested areas (Sakhri,2025).

Furthermore, Algeria's coastal zone has suffered severe degradation due to pollution, uncontrolled sand extraction, and environmental neglect. Coastal and marine ecosystems are increasingly threatened, with 62% of beaches deemed unsuitable for tourism due to industrial waste discharge. Many factories located near the coast release untreated wastewater directly into the sea, containing harmful chemical compounds that negatively impact public health and marine biodiversity, despite existing environmental regulations that mandate impact assessments for development projects.

## **6. The Role of Local Authorities in Environmental Protection**

The role of local authorities in environmental protection is primarily defined by legal and regulatory frameworks. According to Law No. 11-10 on municipalities (Article 94), municipalities are responsible for public hygiene, waste management, and environmental protection. Law No. 12-07 on wilayas (Article 88) assigns the wilaya a role in coordinating development policies and environmental planning. In addition, Law No. 03-10 (Articles 3–5) establishes the general framework for environmental protection and sustainable development. Despite these legal provisions, their implementation remains limited in practice.

Local communities are the primary actors in implementing environmental policies at the local level, bearing the responsibility for environmental planning, management, and ensuring the sustainable use of natural resources. However, their ability to fulfill this role is hindered by numerous challenges and obstacles that impede the achievement of the desired environmental goals. Despite the existence of a legal and regulatory framework covering various aspects of environmental protection, a gap remains between legislation and its practical implementation, necessitating an assessment of the effectiveness of local communities in this domain.

In this context, this study examines the key challenges facing local communities in environmental protection, ranging from administrative and financial constraints to weak coordination among various stakeholders and the lack of environmental awareness in certain societal segments. Additionally, it explores proposed strategies to enhance the role of local communities in achieving effective environmental governance, including improving local planning, developing mechanisms for community participation, strengthening cooperation among local and international actors, supporting infrastructure, and empowering specialized environmental expertise.

Through this analysis, we aim to provide a comprehensive perspective on the state of environmental protection at the local level in Algeria, with a focus on the most effective means to

strengthen the role of local communities in addressing environmental challenges and achieving sustainable development that aligns with national and international requirements in this field.

### **6.1. Local Authorities and Environmental Governance**

This assessment is based on a legal and institutional analysis rather than a field study. It focuses on examining the gap between legal provisions governing local authorities and their practical implementation in environmental protection.

The analysis shows that the main limitation is not the absence of legal texts, but rather their limited implementation at the local level due to institutional constraints, financial limitations, and weak coordination among stakeholders.

Local authorities are not only responsible for managing environmental resources but also serve as key actors in translating national environmental strategies into concrete actions. Their role extends to enforcing environmental regulations, fostering community engagement, and promoting environmental awareness. Additionally, by forging partnerships with national and international stakeholders, they can leverage technical expertise and financial support to enhance the effectiveness of local sustainability initiatives.

This section examines the critical functions of local authorities in environmental governance, focusing on their role in resource management, policy implementation, community engagement, environmental education, and partnership building.

### **.6.2. Environmental Resource Management**

Local authorities are responsible for planning and sustainably managing natural resources at the local level, including agricultural lands, forests, and water resources. This enables them to develop environmental policies that consider the specific environmental characteristics of each region. Such an approach contributes to achieving balanced and sustainable development while integrating environmental, social, and economic considerations (Sakhri, 2021, p.142).

### **6.3. Translating Environmental Policies into Practice**

Local authorities serve as intermediaries between national policies and local communities, bearing the responsibility of implementing environmental laws and ensuring compliance. They also oversee activities with environmental impacts, such as industrial pollution and unregulated construction, to ensure the effective execution of environmental policies and the realization of their intended goals.

### **.6.4. Enhancing Community Participation**

Local authorities play a key role in engaging citizens and civil society organizations in environmental decision-making processes. This participatory approach fosters transparency and equity in managing environmental resources while increasing the likelihood of success for

environmental projects. By empowering local communities to contribute effectively, authorities can enhance the design and implementation of environmental plans.

### **.6.5.Environmental Education and Awareness**

Local authorities play a crucial role in promoting environmental awareness and educating the public about the risks associated with climate change. Through awareness campaigns and educational activities, they encourage individuals to adopt sustainable practices that help preserve the environment and mitigate the negative impacts of human activities.( Sakhri,2017,p.112)

### **.6.6.Building Local and International Partnerships**

Local authorities have the capacity to establish strategic partnerships with non-governmental organizations, research centers, and international funding bodies to support the implementation of sustainable environmental projects. These partnerships provide additional financial resources and technical expertise, thereby improving the quality of environmental work and enhancing the efficiency of local initiatives aimed at achieving environmental sustainability.

The following sections will discuss the role of both the Wilaya (province) and the municipality in environmental protection in Algeria.

## **7.Assessing the Role of Local Authorities in Environmental Protection**

Local authorities play a central role in implementing environmental policies at the local level, as they are responsible for environmental planning, resource management, and ensuring sustainability in the use of natural resources. However, their ability to fulfill this role is hindered by numerous challenges and obstacles that impede the achievement of environmental goals. Despite the existence of a legal and regulatory framework covering various aspects of environmental protection, the gap between legislation and its practical implementation remains a pressing issue, necessitating an evaluation of the effectiveness of local authorities in this domain.

In this context, this chapter examines the key challenges faced by local authorities in environmental protection, ranging from administrative and financial constraints to weak coordination among stakeholders and a lack of environmental awareness in some communities. Additionally, it explores proposed strategies to enhance the role of local authorities in achieving effective environmental governance, including improving local planning, developing mechanisms for community participation, strengthening cooperation among local and international actors, supporting infrastructure, and empowering specialized expertise in the environmental field.

Through this analysis, we aim to provide a comprehensive perspective on the reality of environmental protection at the local level in Algeria, focusing on the measures needed to enhance the effectiveness of local authorities in addressing environmental challenges and achieving sustainable development in line with national and international requirements.

### **7.1. Strategies to Enhance the Role of Local Authorities**

In this context, this chapter examines the key challenges faced by local authorities in environmental protection, ranging from administrative and financial constraints to weak coordination among stakeholders and a lack of environmental awareness in some communities. Additionally, it explores proposed strategies to enhance the role of local authorities in achieving effective environmental governance, including improving local planning, developing mechanisms for community participation, strengthening cooperation among local and international actors, supporting infrastructure, and empowering specialized expertise in the environmental field (Frija,2009,p.79)

Through this analysis, we aim to provide a comprehensive perspective on the reality of environmental protection at the local level in Algeria, focusing on the measures needed to enhance the effectiveness of local authorities in addressing environmental challenges and achieving sustainable development in line with national and international requirements

The challenges mentioned above can be addressed to enhance the role of local authorities in environmental protection and to promote sustainable management through the development and support of local planning. This can be achieved by improving the efficiency of local administration through training and employing qualified staff with specialized skills. This includes creating local environmental jobs that combine both theoretical and practical training, guiding staff members, hiring high-level experts, and reducing the use of non-specialized temporary contracts. For example, technical experts specializing in pollution monitoring and control should be trained.( Saidi,2011,p.27)

It is also essential to foster continuous and sustainable local economic growth that contributes to achieving local self-sufficiency. This can be done by relying on the region's local resources, which enhances financial autonomy and helps overcome social challenges, including the management of cleanliness and environmental safety. In addition, this strategy encourages the growth of green start-ups.

Another important strategy is the activation of neighborhood committees and promoting local environmental awareness. This can be done by encouraging citizens to participate in municipal issues and raising awareness about environmental problems. Additionally, efforts should be made to maintain green spaces (such as parks, gardens, and other green areas) to restore balance between built-up areas and functional neighborhoods, thereby cultivating a sense of belonging to the environment and fostering a commitment to its preservation.( Meaifi,2011,p.179)

Providing the necessary infrastructure to ensure the success of local environmental governance strategies is crucial. This involves engaging all stakeholders in environmental policy, expanding partnerships with the private sector, and activating mechanisms for collaboration between civil society organizations and local governments. This can help improve environmental governance and foster effective partnerships with both the state and local institutions.( Sakhri,2017,p.120)

Moreover, strict measures should be adopted to deter anyone deliberately contributing to the pollution and destruction of urban environments. It is essential to update local legal frameworks to align with national and international environmental developments and provide local authorities with the necessary resources, tools, and services to combat environmental challenges. Expanding their decision-making powers will also enable them to address environmental risks effectively.( Koui & Ramadan,2024)

Supporting community and professional training in environmental fields, as well as creating job opportunities for youth in municipalities in these fields, should be a priority. Encouraging young people to create small environmental enterprises and collaborate with local authorities to address local environmental issues will contribute to sustainable development.( Dhibih,2012,p.189)

Shifting the mindset from viewing environmental preservation as merely commemorating national and international days to adopting new, practical, and sustainable approaches is essential. Environmental improvement must be recognized as a continuous daily effort that takes place in every corner of neighborhoods and municipal areas(Sakhri,2025).

Recently, Algeria has activated the role of urban police. However, there remains a need to strengthen the role of environmental police in municipalities to prevent environmental violations, such as illegal construction in riverbeds or dumping industrial waste on beaches.

Linking local universities (centers and laboratories) with local governments and environmental directorates will help investigate the causes of local and national environmental degradation. By studying the factors behind the failure of local administrations to address these deteriorating environmental conditions, it will be possible to use the findings to adopt immediate practical measures that respect environmental components.

## **Conclusion:**

Local authorities (municipalities and provinces) in Algeria play a vital role in environmental protection through the implementation of policies and measures necessary for safeguarding the environment and addressing various climate changes. This ensures the improvement of quality of life and promotes sustainable development for local citizens. Local authorities are entrusted with the responsibility of maintaining and preserving natural resources and combating any actions that could threaten public health or ecological balance. Additionally, they ensure the sound management of the vital resource "water" and are fully responsible for preserving ecosystems, managing waste, and maintaining the cleanliness and health of the surroundings.

The law stipulates coordination and cooperation between municipalities and specialized bodies. Therefore, local authorities in Algeria are responsible for implementing and monitoring environmental programs and policies adopted by the state, as well as overseeing the environmental situation at the regional level. Despite the growing role of local authorities, there are several obstacles that limit their effectiveness in addressing environmental issues, especially waste management. This can be attributed to the marginalization of environmental issues, which are often limited to cleanliness and waste recycling. Today, the world is moving toward an energy transition and energy economics, where local authorities play a key role in achieving these goals,

which also relates to the environmental awareness of both citizens and officials.

The weakness of local environmental infrastructure, as well as the monitoring systems for ecosystems and diverse energy portfolios at the provincial level, has led to numerous issues, such as the mismanagement and recycling of waste, which remains a persistent problem for local authorities due to the randomness in determining public dumpsites and the lack of safe disposal of waste. Developing monitoring systems could determine the potential of local authorities in developing energy economies, which requires the preparation of a legal framework and a reevaluation of the institutional structure for environmental protection, as well as redistributing the roles of local actors in environmental protection.

Activating the role of local authorities in environmental protection and promoting sustainable development requires the redesign of the legal and financial framework for their intervention to encourage local environmental initiatives and enhance cooperation and participation between local authorities, civil society organizations on one hand, and the private sector on the other. Additionally, efforts must be made to strengthen and develop the local capacities of officials and elected representatives in environmental protection to raise environmental awareness and promote proper environmental behaviors and practices.

There is a need to enhance national, regional, and international cooperation between local authorities and their counterparts to improve efficiency and replicate successful local environmental development models.

The study confirms that the main challenge lies not in the absence of legal frameworks, but in their limited implementation at the local level.

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