

Applications of Algerian Liability for Industrial Pollution Crimes According to the Trends of the Algerian Legislator : Between Effectiveness and Shortcomings

تطبيقات المسؤولية الجزائية عن جرائم التلوث الصناعي وفق توجهات المشرع الجزائري:
بين الفاعلية والقصور



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Abstract:

Industrial pollution represents a major challenge for environmental protection and influences the evolution of criminal liability rules in Algerian legislation. The Algerian legislator has enacted various provisions to combat pollution resulting from industrial activities, particularly in light of technological advancements and the growth of polluting industries. A range of legal mechanisms has been established to classify these issues as environmental crimes. However, the effectiveness of these laws and mechanisms continues to be debated, particularly regarding their efficacy and ability to effectively protect the environment from the increasing threat of industrial pollution.

Keywords: pollution, industrial, environment, criminal liability, industrial activities.

ملخص:

لقد أصبح التلوث الصناعي من أبرز التحديات التي تواجه حماية البيئة، وفي الوقت تؤثر على مستقبل تطوير قواعد المسؤولية الجزائية وفق توجهات المشرع الجزائري، بحيث نظم هذا الأخير أحكام عديدة بخصوص حماية البيئة من منظور التلوث الناتج عن النشاطات الصناعية، لا سيما في ظل التطور التكنولوجي وتنامي الصناعات الملوثة للبيئة، إذ تم وضع مجموعة من الآليات القانونية لمواجهة هذه الظاهرة التي احتلت مكانتها ضمن الجرائم الماسة بالبيئة، غير أنه تبقى الفعالية الحقيقية لهذه القوانين والآليات محل تساؤل بين الفاعلية والقصور، ومدى قدرتها على توفير وتحقيق الحماية بالبيئة من تنامي خطر التلوث الصناعي.

كلمات مفتاحية: التلوث، الصناعي، البيئة، المسؤولية الجزائية، النشاطات الصناعية.

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INTRODUCTION

Environmental issues in the modern era have become a focal point of discussion for everyone, particularly within the legal and judicial systems. With the emergence of new types of pollution, including industrial pollution, it has become essential to adapt to this situation by expanding the scope of criminalization regarding the imposition of criminal responsibility on anyone involved in its perpetration. This is crucial for the protection of the environment and the achievement of sustainable development, as well as safeguarding human and animal health from the negative effects of industrial pollution emanating from various activities aimed at achieving industrial and economic development at the expense of the environment.

The significance of this topic lies in the quest for a legal framework that defines the establishment of criminal responsibility, as it contributes to understanding how the Algerian legislator deals with industrial pollution crimes, particularly with the diversity of industrial activities, the growth of their polluting emissions, and the methods of waste disposal, whether in air, water, or soil. Thus, it aims to guide institutional opinion and legal

thought towards the importance of this issue in safeguarding the environment and protecting it from the hazards of industrial pollution by improving legal performance in this area.

This research paper primarily aims to clarify the legal provisions associated with establishing the application of criminal responsibility for committing industrial pollution crimes, whether by natural or legal persons. It also seeks to elucidate these provisions through an analysis of the Algerian legislator's perspective on industrial pollution, thereby evaluating the effectiveness of these laws and provisions in addressing environmental crimes related to this type of pollution, leading to proposals for enhancing legal frameworks regarding the imposition of criminal responsibility for industrial pollution crimes.

The issue of industrial pollution, from the perspective of establishing criminal responsibility rules, raises a set of questions with legal, judicial, environmental, and economic dimensions, given their connection to the future and safety of the environment, as well as the requirements for achieving sustainable development. These can be summarized in the problem of industrial pollution concerning the rules of criminal responsibility and the challenges faced by judicial and legal work in addressing gaps while balancing the need to keep pace with modern developments and the requirements for establishing criminal responsibility within the legislative system.

This study relies on a methodological plurality based on description, analysis, comparison, and induction, by identifying the criminal responsibility rules applicable to the phenomenon of industrial pollution as a crime stipulated in environmental law or one of the related laws concerning both natural and legal persons. Additionally, it analyzes the specific mechanisms relied upon in practice to activate these responsibilities, leading to a set of results and proposals that contribute to improving the response to industrial pollution by developing the rules of criminal responsibility.

This issue will be addressed through a dual plan based on two main axes: the first focuses on the approach towards criminalization policies in industrial pollution as a basis for criminal responsibility, while the second is dedicated to studying the effectiveness of the establishment of criminal responsibility rules concerning industrial pollution crimes

1. The Approach to Criminalization Policies in Industrial Pollution as the Basis of Criminal Responsibility

In light of the increasing industrial activities and the emergence of start-ups exploiting modern technology for profit at the expense of environmental safety and security, the phenomenon of industrial pollution has become one of the most significant issues capturing the attention of the legal arena in modern societies. As a result of the risks associated with this type of pollution, there has been a necessity to adopt precise and effective legal measures to protect the environment. This approach generally represents a move towards criminalization policies in industrial pollution as a legal response to achieve criminal accountability for those responsible for environmental damage, which will be studied according to the perspectives of the Algerian legislator concerning both natural and legal persons.

1.1. The Position of the Natural Person in the Criminalization Policy of Industrial Pollution:

It is well known that much of the pollution affecting the environment and humanity stems from modern industrial activities and the solid, liquid, and gaseous waste they produce, which harm elements of the natural environment, especially water as one of the most vital components of the environment. River waters may be polluted due to the industrial activities established on their banks or nearby. Major factories are often built close to rivers to use water as a raw material in production or to operate machinery, resulting in the discharge of industrial liquid waste containing

high levels of toxins and heavy metals without undergoing any treatment¹.

At this point, the question arises regarding how to establish the rules of criminal responsibility for such violations by natural persons. All criminal legislations follow the principle of criminal responsibility as a legal basis for the right to punishment, but they often do not specify this principle clearly and explicitly. Instead, they tend to address it indirectly².

Responsibility here can be moral or ethical; the ethical responsibility pertains to the moral and ethical consequences arising from violating ethical rules, which do not fall within the scope of the law. Legal responsibility, on the other hand, is realized when the elements of the crime are proven³, whereby the offender is subject to the penalty defined by law through a judicial ruling. This definition aligns with the origin of the word "responsibility," which means accountability, i.e., questioning the offender about the reasons behind their choice to commit the crime as behavior that contradicts societal norms and interests⁴.

The essence of a crime is that only the convicted individual bears the penalty for it to establish the punishment against them. The severity of the punishment must correspond to the nature and subject of the crime, meaning that a person bears consequences only for their actions. Thus, the principle of personal responsibility is assumed; a person is not held accountable for a crime nor subjected to punishment unless they are deemed an actor or participant in it⁵.

In industrial institutions, individuals do not operate outside being subordinates or managers, where criminal responsibility can only be established for acts that arise from their independent will and legal violations due to their close association with production operations, which increases the likelihood of legal violations leading to industrial pollution within the institution.

It can be said that criminal responsibility is considered personal, and no one can be held accountable for a crime they did not commit or

participate in. Modern legislations stipulate that a person is only questioned as an actor or participant for activities contributing to the occurrence of acts specified as criminalized by law, either through action or inaction. Therefore, whether related to positive or negative crimes, this responsibility represents a logical outcome of the principle of personal criminal responsibility, and punishment can only be executed against one whom the court has deemed responsible for the crime. Once it is established that an individual contributed to the creation of pollutants, criminal responsibility can be determined based on their failure to comply with what the law prohibits or their failure to meet what is required ⁶.

• Examples of the Application of Criminal Responsibility for Natural Persons in the Context of Industrial Pollution:

It is acknowledged that an individual bears criminal responsibility only for actions they have performed that violate legal provisions. However, the economic and industrial developments and the resulting large projects affecting the future of environmental security have led to a transcendence of the traditional principle of personal responsibility that applies solely to individuals. This has extended to recognizing responsibility for actions committed by others in order to enhance the protection of assets and projects, particularly in facing the significant risks that threaten environmental protection. Thus, it has become possible to hold the manager or director of an industrial enterprise accountable for actions performed by one of their employees through the following:

- The Personal Responsibility of the Employee for Causing Industrial Pollution as a First Model:

The employee's responsibility is linked to the principle of personal punishment, which states that no one can be held responsible except for their own actions, and they cannot be punished except for crimes they committed or contributed to. Therefore, in order to establish the employee's responsibility for committing any polluting act, there must first be a legal text that criminalizes their actions, and then evidence must

be presented to prove their commission of the criminal activity prohibited by law, confirming their deviation from the behavior of a reasonable person under the same circumstances, or indicating that due to negligence in taking the measures required by laws and regulations, they have committed an error. Additionally, consideration must be given to the idea of collective criminal responsibility when a team in an industrial enterprise carries out activities that lead to pollution of one of the environmental media through one or more industrial activities of that enterprise. In this context, the theory of complicity in committing environmental crimes can be discussed, distinguishing between cases of agreement and cases of disagreement among participants:

- Case of Agreement to Commit an Industrial Pollution Crime:

The existence of both moral and physical unity among the perpetrators of the crime necessitates differentiating between them to determine the original perpetrators and accomplices. A person who commits the material act of the crime themselves or directs others to commit it is considered a primary actor, either directly or materially. Meanwhile, those who assisted the perpetrators or supported them in executing preparatory, facilitating, or executing acts leading to industrial environmental pollution are considered accomplices⁷.

- Case of Disagreement to Commit an Industrial Pollution Crime:

If employees working in a specific industrial unit commit a criminally polluting act and there was no agreement among them to discharge or dispose of the pollutants in a certain environment, each one of them bears independent responsibility for a separate crime. Nevertheless, the nature of pollution crimes calls for greater criminal protection in terms of legislation and judiciary⁸. For instance, the French judiciary recognized the existence of complicity when owners and operators of certain buoys and ships moored along the river routinely discharged sewage and threw pollutants. Additionally, four factories were criminalized for discharging harmful substances into one of the rivers, regardless of whether any of these factories caused the pollution or not. Notably, the application of

this responsibility faces significant obstacles, particularly the difficulty of attributing the crime, as it is challenging to prove pollution crimes due to their complexity and multiple sources. It may be impossible to identify the responsible employee due to their abundance, especially if the work is performed in shifts and the pollution originates from different industrial units within the same factory. These obstacles also include the possibility of the employee excusing themselves due to ignorance of the law, given that a simple worker lacks the expertise and ability to be familiar with environmental regulations compared to the manager⁹.

This means that the personal responsibility of the employee for industrial pollution crimes is determined based on their legally respected behaviors and the extent of their connection to environmental damage. Every employee can be considered responsible for their acts or personal actions aimed at industrial pollution of the environment, without any agreement with their colleagues to commit this act and without relying on the industrial enterprise. Criminal responsibility is established based on the circumstances that led them to commit this pollution act.

- Responsibility of the Manager for the Acts of Others: A Departure from the General Principle in Establishing Criminal Responsibility for Industrial Pollution as a Second Model:

Before delving into this topic, which has more of a civil than a criminal nature, the question arises as to whether penal legislation, particularly the Algerian legislator, has recognized criminal responsibility for the acts of others in the fields of economic and health crimes and civil law. Has environmental law or any related legislation addressed this type of responsibility?

Criminal responsibility for the acts of others has found a broad scope within environmental criminal law, especially regarding economic institutions and industrial and craft facilities. Legal and regulatory texts governing their activities include objectives related to ensuring security and safety, in addition to maintaining public health both inside and outside the facility, including environmental protection¹⁰. This is

attributed to the fact that most environmental crimes stem from the mismanagement of classified facilities due to their diverse activities and the failure of those in charge to adhere to the prescribed provisions for environmental protection, as well as non-compliance with regulatory procedures and the supervision of the principal over the subsidiary in performing their tasks.

This has prompted the Algerian legislator to adopt this new type of criminal responsibility in order to enhance environmental protection and develop the rules of criminal responsibility concerning industrial pollution crimes. Holding managers of industrial enterprises accountable for the acts of their subordinates within the context of environmental provisions and the method adopted by the legislator in criminalization affirms that their criminal responsibility remains within the framework of the principle of personal punishment. The formulations of the criminalization texts related to environmental pollution are flexible and use broad terms— as will be discussed later in the context of mechanisms—allowing for the imposition of penalties for any form of environmental pollution. Consequently, any person who contributed to environmental pollution can be prosecuted, regardless of the type of their activity or the methods or materials used to achieve it¹¹.

Algerian law has moved towards tightening legislation and the judiciary regarding the responsibility of the manager for the actions of their subordinates, despite the existence of several justifications supporting this type of accountability. The Algerian legislator did not explicitly state the principle of liability for the acts of others; rather, it only referenced the possibility of establishing the manager's responsibility in rare cases¹², as indicated in Article 61 of Environmental Law No. 83-03. This article acknowledges indirect criminal responsibility, stating that in cases of discharges, emissions, disposal, or deposition of non-compliant materials by an industrial, commercial, craft, or agricultural enterprise, its heads, directors, or managers may be considered jointly responsible for paying fines or legal costs associated with these violations. Article 100 of Law

No. 03-10 concerning environmental protection within sustainable development reiterates this, whether directly or indirectly. Additionally, the legislator considered the principal, whether the ship owner or operator, as a partner in the crime, and therefore responsible alongside the primary perpetrator, according to Article 92 of Law No. 03-10.

Industrial pollution cases and the associated responsibilities are among the major challenges facing legislators in many countries, including Algeria, where the text addresses the responsibility of the owner or operator of a ship, aircraft, or vehicle in cases of violations concerning marine environmental protection from the threat of industrial pollution, highlighting the possibility of doubling the penalties imposed on the perpetrator. This reflects a strong commitment to enhancing obligations for environmental security, as the owner or operator is held accountable for harmful acts that may lead to water pollution. If the owner is a legal entity, responsibility is directed towards the individuals managing operations in line with the establishment of criminal responsibility rules in the penal code.

This confirms that the Algerian legislator is seriously addressing the issue of responsibility for the acts of others in industrial pollution crimes through a comprehensive legal framework aimed at protecting the environment and achieving sustainable development in the country. This is achieved by establishing a set of laws and regulatory systems designed to mitigate this phenomenon and protect the environment, most notably the Environmental Protection Law and several other laws, such as Law No. 05-12 concerning water, amended and supplemented by Ordinance 09-10, and Law 01-19 concerning waste management, monitoring, and removal, amended and supplemented by Law No. 25-02, along with various international legislations and agreements.

1.2. Establishing Criminal Responsibility for Legal Persons in Industrial Environmental Pollution:

Pursuant to Article 49 of the Algerian Civil Code, legal persons include the state, provinces, municipalities, public administrative institutions,

commercial and field companies, associations, endowment institutions, and any group of individuals or assets granted legal personality by law. The term "legal person" referenced in the Environmental Protection Law No. 03-10 concerns the protection of the environment within the framework of sustainable development and industrial projects and facilities. It is noted that the aforementioned law does not explicitly outline the two conditions under which the legal person can be criminally liable: their knowledge of the illegal acts committed and their contribution to the occurrence of the crime through their failure to fulfill their occupational duties. These conditions must be established for a legal person to be held accountable according to applicable criminal laws in this area. Thus, the Algerian legislator has imposed criminal penalties, specifically fines, on legal persons for environmental crimes, recognizing the role and responsibility of legal entities in preserving the environment to prevent them from evading justice¹³.

A. With regard to the matter of public legal persons:

Public legal persons are entities aimed at serving interests that benefit society as a whole or a part of it. These interests fall under the purview of public authority¹⁴ or represent public authority in any country or one of its departments or branches¹⁵. It is clear from Article 51 bis of the Penal Code, as amended by Law No. 24-06, that the legislator does not allow for the prosecution of public legal persons, whether regional or service-related. The prevailing opinion concerning state accountability indicates that it cannot be held liable, as it seeks to protect individual and social interests and exercises the right to impose penalties on others, which makes it unable to penalize itself. However, disputes arise when discussing the accountability of local communities and service-related legal persons.

Regarding local communities, some legislations, such as Article 2/121 of the French Penal Code, imply the possibility of prosecuting legal persons, excluding the state, which applies to regional legal persons through their employees. Furthermore, Article 1/434 of the agricultural law obliges

provinces to take necessary measures to prevent water pollution, reflecting the responsibility of public authorities alongside the responsibility of facility and factory owners in cases of pollution¹⁶.

As for service-related legal persons, Article 2/121 enables the prosecution of these entities and holds them criminally liable for acts causing environmental pollution resulting from their failure to comply with legal obligations. This is evident, given that most pollution cases result from activities carried out by classified establishments¹⁷.

It appears that the legislator prefers to exclude public legal persons from the scope of liability, based on opinions from some scholars who view their accountability as conflicting with the fundamental principles of public law and lacking in justice, despite their contribution to many pollution cases through industrial or agricultural activities managed by companies or facilities under their jurisdiction. Thus, criminal responsibility for legal persons does not prevent the prosecution of natural persons as primary actors or accomplices in the same acts, as stipulated in Article 51 bis of the Penal Code.

B. Private legal persons:

Legislations that define the criminal responsibility of legal persons state that all private legal entities are subject to criminal accountability, regardless of the form they take or the purpose for which they were established. Whether they aim for profit, like commercial and civil companies, or do not seek financial gain, such as associations, this applies to all legal persons, regardless of the nationality of the entity that committed the crime¹⁸.

There is no issue regarding their potential criminal prosecution when they cause environmental pollution that harms the surrounding environment in general, as this pertains to health, security, or property due to the absence of legal provisions covering them. Among the most important laws concerning the responsibility of legal persons in this regard is the tax and similar fees law, issued under Law No. 90-36 dated 31-12-1990, which includes the Finance Law for the year 1991, particularly Article

38, amended by Law No. 91-25 dated 18-12-1991 concerning the Finance Law for the year 1992, as well as Articles 4 to 57, amended and supplemented by finance laws and complementary finance laws up to Law No. 24-08, which includes the Finance Law for the year 2025.

Similarly, Ordinance 96-22 dated 09-07-1996 concerning the suppression of violations of legislation and regulations related to currency and the movement of capital abroad in its fifth article includes relevant provisions¹⁹. Within environmental laws, there are provisions explicitly acknowledging this responsibility, such as Article 56 of Law No. 01-19 dated 12-12-2001 concerning waste management, monitoring, and removal²⁰.

This means that the criminal responsibility of legal persons in industrial pollution crimes serves as a legal instrument to ensure environmental protection broadly, especially in light of developments in the industrial environment. It encourages companies to adhere to environmental standards and avoid harmful practices that lead to industrial pollution. Thus, establishing this responsibility plays a significant role in enhancing environmental awareness and directing industrial activities toward more sustainable practices.

2. Evaluating the Effectiveness of Establishing Rules of Criminal Responsibility for Industrial Pollution Crimes

Industrial pollution crimes are among the most prominent challenges threatening environmental security and safety. Therefore, the move towards regulating the legal framework or judicial system to combat industrial pollution represents a significant advancement in enhancing environmental protection, achievable only through the establishment of a set of mechanisms that reflect practical realities and identify the main obstacles in this context.

2.1. Mechanisms for Activating the Application of Rules of Criminal Responsibility in the Context of Industrial Pollution:

The criminal rules related to industrial pollution serve as vital legal tools aimed at protecting the environment and public health. Activating these rules requires effective mechanisms to ensure the proper and sustainable application of environmental systems. In this context, the importance of defining criminal responsibilities, applying appropriate penalties, and enhancing the role of regulatory authorities to ensure compliance with environmental standards is evident. Focusing on these mechanisms contributes to raising environmental awareness and reducing risks arising from industrial activities.

A. Relying on Flexible Texts in Addressing Environmental Issues:

The legislator deviated from the strict application of the principle of criminal legality by employing numerous general phrases and technical terms that require expert interpretation to determine their content. Although this pattern of criminalization contributes to better environmental protection by providing greater freedom for the responsible authorities in defining criminal acts, it constitutes a violation of the principle of criminal legality²¹. This principle requires clear and prior legal texts that precisely define the offenses against environmental safety, especially in light of the changes brought about by major and emerging institutions. Therefore, the legal text concerning environmental offenses must be precisely defined in terms of criminalization and punishment to ensure greater effectiveness in application. However, this requirement is not significantly met in environmental criminal legislation²². Notably, one major example of flexible texts in Algerian law related to environmental protection is found in Article 51 of Law No. 12/05 concerning water, which prohibits the discharge or disposal of any substance into public water bodies. This text is general and does not specify the types of substances whose discharge constitutes a water pollution crime, thus opening the door to a range of gaseous, liquid, or solid materials.

The flexible approach in the context of industrial pollution is reflected in this article by allowing competent authorities to impose monitoring

procedures and regular audits to monitor the pollution levels of groundwater and surface water as well as the characteristics of flowing or discharged water, as the text is phrased generally. This allows for the adaptation of these procedures based on evolving environmental conditions or new data. By relying on the provisions of Articles 49 and 50, this method ensures a balance between environmental protection and practical flexibility in addressing changing industrial challenges. Article 51 is directly linked to Articles 49 and 50, which define monitoring procedures, thus permitting flexibility in implementing measures and establishing rules for criminal responsibility for industrial pollution crimes, as it allows adaptation to rapid environmental and industrial changes.

B. Relying on the Referral Method:

The legislator limited the drafting of environmental texts to specifying penalties and outlining the general framework for criminalization, then referred to other texts to define the elements of the crime, whether the referral was explicit or implicit, internal or external²³. An example of implicit referral can be found in Article 64 of the Waste Management Law, which penalizes anyone who deposits, discards, buries, submerges, or neglects hazardous waste in areas not designated for this purpose. This necessitates looking into other texts that precisely define these sites²⁴.

As for internal referrals, an example can be found in Article 14 of Law No. 03-10 concerning Environmental Protection within the framework of sustainable development, which only specifies the penalties for violations causing air pollution, referring to Article 47 of the same law for the general framework of the violation²⁵.

C. Expanding the Powers of Judicial Police in Investigating Industrial Pollution Crimes:

The authority to investigate pollution crimes lies with judicial police officers according to general rules, along with some officials qualified under environmental laws. Judicial police officers and their assistants enjoy the same duties in investigating general law crimes. However, the

complexity of pollution crimes and the emergence of new types makes their intervention infrequent, often occurring only in serious cases that leave clear evidence, such as significant chemical discharges in water bodies. When environmental crimes are difficult to observe and require specific technical and scientific procedures, specialists and qualified staff under environmental laws must take on these tasks, as the judicial police lack the necessary scientific resources and knowledge²⁶. For example, Articles 161 to 165 of the Water Law outline the powers of water police²⁷.

Similarly, Law No. 03-10 for Environmental Protection in Articles 10, 11, and 12 grants these powers to specific employees and assistants, such as environmental inspectors, national coast guard personnel, and mining police.

D. Diversity in Sources for Collecting Evidence of Industrial Pollution Crimes:

The powers of judicial police assign tasks to employees whose work allows them to detect and observe pollution crimes. Law No. 03-10 for Environmental Protection grants in Article 11 the task of investigating and observing violations of its provisions to the employees and assistants mentioned in Article 21 of the Criminal Procedure Code, including environmental inspectors, technical staff in the environmental administration, technical assistants at the Institute of Scientific and Technical Research and Marine Sciences, as well as national coast guard personnel and mining police. The law assigns important powers to these employees, enabling them to uncover and prove crimes. Determining the scope of these powers requires reviewing the contents of each specific law that qualifies them to observe crimes through:

- Access to places:

Employees are allowed to conduct investigations in public places such as streets, farms, and public beaches, and to collect samples of soil, air, or water to verify their safety and compliance with legal standards²⁸. However, mere observation of pollution may not be sufficient to file

charges unless there is evidence indicating that the substances in the environmental medium originate from a specific source²⁹.

Employees also have the right to enter various workplaces such as workshops without the need for an explicit legal provision, as long as the law grants them the authority to document crimes. However, this right does not extend to residences or private areas within the facilities being inspected, as inspections there are subject to specific conditions³⁰.

Executive Decree No. 93-160, which regulates industrial liquid waste, explicitly grants environmental inspectors the right to enter drainage facilities while carrying out their duties. Conversely, inspections are subject to certain conditions³¹, and employees may access various workplaces without the need for an explicit legal text, provided the law grants them the right to document violations of its provisions and their implementing decisions. This does not extend to homes or private areas within facilities where the inspector is conducting inspections, as their inspection is subject to specific conditions. The aforementioned executive decree explicitly grants environmental inspectors the right to enter drainage facilities during monitoring tasks to verify compliance with environmental law³².

- Sample Collection:

Proving pollution crimes often requires verifying the physical, chemical, and biological specifications of industrial waste. This is achieved by collecting samples of substances used or produced during industrial processes, whether in gaseous, liquid, or solid form, and analyzing them according to standards recognized in accredited laboratories. These procedures are based on environmental laws that authorize certain employees to collect samples. For example, Executive Decree No. 93-160 stipulates in Article 17 that inspections must include on-site measurements and analyses and the collection of samples for testing. Article 05 of Executive Decree No. 165-93 states that fixed installations are subject to periodic sampling and surprise inspections by environmental inspectors. Given the importance of samples in

demonstrating the compliance of industrial discharges with applicable standards, the sampling process is subject to specific procedures and timelines related to methods of collection, preservation, and analysis³³.

2.2. Obstacles to the Effective Application of Criminal Responsibility Rules for Industrial Pollution:

The landscape of industrial work has changed, while the provisions establishing criminal responsibility for pollution have evolved significantly. With the increasing environmental challenges, major legislative and judicial obstacles have emerged that hinder the effective implementation of criminal responsibility rules in addressing industrial pollution. These issues will be explored in this section.

A. Legislative Overcrowding within Environmental Legislation:

Environmental crime is characterized by the multiplicity and diversity of legal texts related to it, with these texts found in the Penal Code as well as in specific laws for environmental protection across its various elements, often referring to regulatory texts. Some of these texts are also present in international agreements ratified by Algeria for environmental protection and conservation, resulting in a large number of specific legislations in this field. However, this complexity leads to an overflow of environmental legislation that does not exist within a single law or unified legal structure, creating a legal maze where laws are applied in an unorganized manner. This results in contradictions between texts regarding permissibility and criminalization³⁴.

For example, Article 37 of Law 01-19 criminalizes the dumping of waste in unauthorized places without mentioning the possibility of obtaining a permit, which contradicts Article 24 of Law 84-12 that allows for the disposal of solid waste in forest properties with a permit from the president of the municipal council. While substantive criminal legality requires the existence of legal rules for criminalization and punishment issued by a competent authority, what is observed in the context of environmental crime is an expansion of administrative powers in legislation. These powers have become a secondary authority for

criminalization under the pretext that administrative bodies are technically qualified to protect the environment. This expansion has led to a decline in the role of the legislator and an increase in administrative authority's intervention.

This is due to the diversity of environmental components, including rules related to the protection of animal and plant wealth, cultural and historical heritage, and the preservation of public order in forests, grazing lands, water resources, mining, and hydrocarbons, each of which has its own legal arsenal. Consequently, a large number of laws aim to protect the environment and its natural and artificial elements³⁵.

Thus, understanding the emerging and novel criminal phenomenon relies primarily on the existence of a comprehensive and coordinated legislative policy, rather than the random enactment of laws. When environmental legislations are unsuitable, this hinders their practical activation and leads to a buildup of legal texts and their intermingling, which may cause confusion and misunderstanding of their content.

B. The Limited Judicial Action in Addressing Industrial Pollution Crimes at the Level of the Public Prosecution:

Environmental criminal cases presented to the Algerian judiciary are minimal, making it challenging to analyze and study judicial work in this area. This scarcity can be attributed to the stagnation of the public prosecution apparatus, which only forwards a limited number of pollution crimes to the courts. Even when cases are brought forward, there is often leniency in imposing penalties on offenders. This is evidenced by the authority of the public prosecution to initiate criminal proceedings, as the public prosecutor receives reports, complaints, and notifications in line with Article 36 of the Criminal Procedure Code and makes appropriate decisions regarding them. If they see the need for prosecution, they notify the competent judicial authority to investigate or try the case. This highlights a clear stagnation in the public prosecution's activities within the environmental sector, as statistics indicate that the proportion of environmental cases does not exceed 0.1% of the total

registered cases. This situation is attributed to the prosecution's follow-up policy, as environmental cases are not prioritized compared to other crimes. Additionally, it may be due to the public prosecution not taking the initiative to investigate pollution crimes that they become aware of through means other than formal reports, despite having the authority to initiate public lawsuit³⁶.

C. Weak Judicial Action in the Practical Application by Judges:

Environmental cases often evade criminal justice, being instead subjected to settlements and administrative regulation. When these methods fail, reports of violations are drawn up and sent to the public prosecution, which retains many of them, while only a small percentage reach the criminal judge for adjudication based on the evidence presented. In France, statistics related to penalties for environmental crimes show that judges tend to impose less deterrent penalties, often issuing simple fines without resorting to imprisonment, alongside some ancillary penalties such as confiscation and the closure of facilities³⁷.

Executive Decree No. 276/98, dated September 12, 1998, empowers environmental inspectors to represent the administration before the courts, granting them the authority to act on behalf of the Directorate of Environment in legal matters. The leniency of judges can be attributed to several factors³⁸:

- Technical Judicial Reasons:

Judges must evaluate the severity of harmful acts against the environment and the individuals who committed them to determine whether it is necessary to impose stricter penalties, especially when crimes are committed in the digital environment as part of emerging criminal activity.

- Lack of Training:

Judges suffer from a lack of knowledge regarding environmental disputes, as the training program at the Superior Judicial School does not include the study of environmental crimes. Furthermore, the complexity

and volume of texts related to pollution make it challenging for judges to receive adequate training in this area.

- Complexity and Interconnection of Laws:

The intricacies and density of environmental laws contribute to the difficulty in identifying the applicable penal rule, forcing judges to consult multiple texts from various laws and decrees.

D. Duality of Criminal Penalty and Weak Deterrent Effect on Industrial Polluters:

The criminal penalty refers to any action prescribed by law and imposed by a judge on a person found responsible for a crime. This incorporates the consequences of wrongful behavior that is considered a crime under the Penal Code or related laws. The criminal rule encompasses two elements: the obligation and the penalty. The obligation is the directive addressed to everyone to refrain from committing crimes of any type, while the penalty involves punishing those who dare to violate these orders³⁹.

In the field of environmental regulation, the Algerian legislator employs a mix of administrative and criminal penalties within a unified penal system, allowing appropriate penalties to be imposed on industrialists causing environmental pollution. This system greatly enhances legal protection for the environment, as criminal penalties highlight the moral aspect of pollution cases and reflect societal condemnation of such actions. Punishment serves as a deterrent for offenders and warns other members of society against committing similar acts. On the other hand, administrative penalties require violators to adhere to the administrative and technical regulations in line with environmental laws to prevent pollution, alongside their significant preventive role⁴⁰.

In theory, administrative penalties should not negate the establishment of criminal responsibility for industrial offenders or prevent the application of criminal sanctions against them. A perpetrator can face both types of penalties simultaneously due to committing the same unlawful acts. However, the practical aspect reveals a flaw in the penal system, as

administrative penalties often prevail over criminal penalties, which are only utilized when administrative actions fail. The principle of separation between administrative and judicial authority leads to an important rule: "the independence of administrative and criminal penal systems," meaning that the offender can receive both an administrative and a criminal penalty for the same act. This raises the question of how to apply both: should one penalty be prioritized over the other, or can procedures for both proceed simultaneously?⁴¹

Legal texts in this area indicate that the legislator has organized the administrative and criminal penalties in parallel, clarifying that imposing an administrative penalty does not terminate the public prosecution, thus reinforcing the principle of independence between the two sanctions. In reality, the administrative handling of pollution demonstrates the failure of the system in criminal proceedings, suggesting that the administration believes administrative punishment is sufficient.

E. The Challenges of Modern Technology on Environmental Legislation in the Context of Industrial Pollution:

Controlling industrial pollution relies on monitoring industrial discharges throughout the production process across all production units within an establishment, ensuring compliance with legal and regulatory limits, as well as ministerial decisions governing them. This includes encouraging establishments to achieve zero liquid discharge whenever possible and utilizing these discharges for other purposes from a sustainability perspective (such as fire-fighting water or irrigation for non-fruit trees). Pollution control and industrial process improvements are achieved by adopting technologies represented in industrial research applications and cleaner production projects. Additionally, industrial pollution can be managed by introducing and developing cleaner production methods through optimal use of natural resources, along with employing economic methods for reusing resources and production waste. This includes reviewing methods used for managing emissions and wastewater through the application of environmental management

systems and finding practical means to prevent pollution at the source, mitigating any potential negative impacts on the environment⁴².

With increasing industrial interventions impacting the environment and the growth of destructive activities, including nuclear handling, waste burial underground or in seas and oceans leads to soil and water contamination. The Algerian National Center for Studies and Research has confirmed that after French forces left their nuclear testing bases in the Algerian desert, deep pits were created to store equipment used in their experiments, along with waste and radioactive materials, leading to the contamination of groundwater in those areas when exploited for drinking or irrigation. This has resulted in numerous diseases affecting both human and animal health, and there are concerns about the emergence of further diseases in the future due to the persistence of radioactive materials that are the result of historical industrial pollution⁴³. Thus, modern technology does indeed assist in overcoming the dangers and risks of pollution in general, and specifically industrial pollution, through effective management and the use of digital technologies for environmental protection. However, this alone is insufficient given the weaknesses in the legal and judicial systems, especially with the emergence of artificial intelligence and its implications on legal texts.

CONCLUSION

In conclusion, it can be said that the issue of industrial pollution is one of the most important topics that require detailed exploration, particularly concerning the establishment of rules for criminal responsibility for polluters, highlighting both effectiveness and shortcomings. Despite the existence of legal texts, the practical and operational side is almost non-existent due to the stagnation of public prosecution interventions, despite the powers granted to it. Additionally, there is a limited judicial response at both the level of

judicial police and judges, which explains the prevalence of other crimes over industrial pollution, a crime that is emerging in the effort to protect the environment. Given the growing threat of industrial pollution to air, land, and water environments, there is an urgent need to enhance the legal and judicial systems in addressing environmental crime from the perspective of the implications of modern industries on environmental security and safety.

Study Results:

The establishment of rules for criminal responsibility for industrial pollution represents a qualitative leap in the realm of environmental protection from negative interventions, which may involve not only natural persons but also legal entities, possibly as amended in 2010.

Environmental crimes generally exhibit a dual penal nature between criminal and administrative approaches, and this overlap adversely affects the rules of responsibility put in place to combat environmental pollution crimes in general.

— The shortcomings of criminal responsibility rules from a judicial application standpoint are due to a range of obstacles that necessitate quick practical treatment, especially at the level of the public prosecution, despite the powers granted to it in combating crimes.

— Law No. 03-10 related to environmental protection within the framework of sustainable development is insufficient in clarifying the rules of criminal responsibility regarding the criminalization of industrial pollution developments; thus, all

preventive and remedial measures cannot be implemented effectively in light of legislative inflation without practical benefit.

Study Recommendations:

_ It is essential to update the legislations related to environmental protection to align with current developments in accordance with international standards, thoroughly reviewing the use of terminology and explicitly including industrial pollution in establishing criminal responsibility, while reaffirming it in various supplementary laws related to environmental law during criminalization and punishment.

_ Enhancing environmental awareness and promoting the culture of environmental protection is a collective responsibility, ensuring that the establishment of criminal responsibility provisions aligns with legislative authorities aimed at serving national interests and achieving environmental protection within the framework of sustainable development, especially In the face of emerging threats to environmental security and safety.

_ It Is advisable to create mechanisms for coordination between the legislative authority and the judicial authority, as well as between institutions responsible for industrial pollution, to reach amicable solutions before taking legal action to effectively address pollution and steer industries towards a better environmental future.

_ Efforts should be made to strengthen the scientific aspect by supporting relevant theoretical and practical research and studies related to environmental protection, especially from the legal perspective, by enriching emerging topics that pose risks to

environmental security and safety.

_ Developing and enhancing partnerships between the public and private sectors to comprehensively address pollution is crucial. This may include the state ceding some authorities to private entities willing to propose effective solutions to prevent industrial pollution, similar to the case with emerging institutions, supporting them and lifting certain customs or tax barriers when it comes to equipment that promotes economic growth while also protecting the environment.

_ There should be an effort to invest in modern technology and the revolution of artificial intelligence in protecting the environment rather than threatening its safety, including the establishment of sensors that predict the occurrence of industrial pollution within an organization, necessitating the cessation of activities before the consequences of pollution manifest.

Marginalization

¹ Aref Saleh Mukhalaf, *Environmental Administration : Administrative Protection of the Environment*, Al-Yazouri Scientific Publishing and Distribution, Jordan, 2009, p. 58.

² Ahmad Mahmoud, *The Crisis of Clarity in Criminal Pain in Algerian Law and Comparative Law*, Volume 1, Dar Houma Publishing, Algeria, 2000, p. 152.

³ Amar Ouabidi, *The Theory of Administrative Responsibility : An Analytical and Comparative Study*, University Publications Office, Algeria, 1994, p. 14.

⁴ Ahmad Majhouda, *Previous Reference*, p. 143.

⁵ Ashraf Hilal, *Intermediary Crimes Between Theory and Practice*, Al-Adab Library, Cairo, 2005, p. 44.

⁶ Same Reference, p. 82

⁷ Wanas Yahya, Legal Mechanisms for Environmental Protection in Algeria, Doctoral Thesis, Faculty of Law and Political Science, University of Tlemcen, 2007, p. 185.

⁸ Amar Ouabidi, Previous Reference, p. 154.

⁹ Mhyiddin Biryih, Criminal Responsibility for Industrial Pollution Crimes, Al-Bahith Journal for Academic Studies, No. 2, 2014, p. 40.

¹⁰ Mahmoud Ahmad Taha, Criminal Protection of the Environment from Pollution, Manshat Al-Ma'arif, Alexandria, Egypt, 2006, p. 124.

¹¹ Nour Al-Din Hindawi, Criminal Protection of the Environment, Dar Al-Nahda Al-Arabia, Egypt, 1985, pp. 106-107.

¹² Ali Saydan, Legal Protection of the Environment from Pollution by Hazardous Materials in Algerian Legislation, Doctoral Thesis, University of Algiers, Ben Youssef Ben Khaldia, Faculty of Law, Algeria, 2007, p. 335.

¹³ Ali Said, Protection of the Environment from Pollution by Radioactive and Chemical Substances in Algerian Law, Dar Al-Khaldounia Publishing and Distribution, Algeria, 2008, p. 334.

¹⁴ El-Wizzah Belassli, Criminal Responsibility of Legal Persons for Economic Crimes, Thesis submitted for the Doctorate in Law, Mouloud Maamery University of Tizi-Ouzou, 2014, p. 97.

¹⁵ Alawi Ali Ahmad Al-Sharafi, Criminal Responsibility of Legal Persons : A Comparative Study, The Democratic Arab Center for Strategic, Political and Economic Studies, Berlin, Germany, 2019, p. 23.

¹⁶ Medine Amal, Classified Installations for Environmental Protection : A Comparative Study, Master's Thesis, Faculty of Law and Political Science, Abou Bakr Belkaid University, 2013-2012, p. 95.

¹⁷ Saker Abdel Salam, Criminal Responsibility for Industrial Pollution Crimes, Master's Thesis, Faculty of Law, Badji Mokhtar University, Annaba, 2006, p. 85.

¹⁸ Mbarak Alwani, International Responsibility for Environmental Protection : A Comparative Study, Doctoral Thesis in Law specializing in International Relations, Mohamed Khider University of Biskra, Faculty of Law, 2016-2017, p. 338.

¹⁹ Order No. 96-22 dated July 9, 1996, concerning the repression of violations of legislation and regulation related to currency transactions with foreign countries, amended by Order No. 10-03 dated August 26, 2010, Official Gazette, No. 50, p. 9.

²⁰ Amended by Law No. 25-02 dated 21 Sha'ban 1446 (February 20, 2025), Official Gazette, No. 12.

²¹ Mhyiddin Biryih, Previous Reference, p. 229.

²² Dabbakh Fawzia, The Role of the Judge in Environmental Protection, Generation of Human Rights Journal, No. 2, Beirut, June 2013, p. 90.

²³ Mhyiddin Biryih, Previous Reference, p. 228.

²⁴ Article 64 of Law No. 01-19 dated December 12, 2001, concerning the management, monitoring, and disposal of waste, Official Gazette, No. 77, amended by Law No. 25-02.

²⁵ Law No. 03-10 dated July 20, 2003, concerning environmental protection within the framework of sustainable development, Official Gazette, No. 43.

²⁶ Al-Saleh Bougrara, The Effectiveness of Criminal Responsibility for Industrial Pollution Crimes, Journal of Scientific Research in Environmental Legislation, Vol. 4, No. 2, 2014, p. 151.

²⁷ Order No. 09-02 dated Rajab 29, 1430 (July 22, 2009), amended by Law No. 05-12 dated Jumada Al-Thani 28, 1426 (August 4, 2005), concerning water, Official Gazette, No. 50.

²⁸ Amin Mustafa Muhammad, Procedural Protection of the Environment, Dar Al-Jami'a Al-Jadida Publishing, Egypt, 2002, pp. 29 and onward.

Mustafa Muhammad, Procedural Protection of the Environment, Dar Al-Jami'a Al-Jadida Publishing, Egypt, 2002, pp. 29 and onward.

²⁹ Ashraf Tawfiq Shams Al-Din, Criminal Protection of the Environment, Dar Al-Nahda Al-Arabia, Egypt, 2004, p. 270.

³⁰ Articles 15 and 16 of Executive Decree No. 93-160, regulating industrial liquid waste, dated July 10, 1993, Official Gazette, No. 46.

³¹ Decree No. 96-60 dated January 27, 1996, concerning the establishment of a state environmental inspection, amended by Executive Decree No. 03-494 dated December 17, 2003.

³² Ashraf Tawfiq Shams Al-Din, Previous Reference, p. 270.

³³ Al-Saleh Bougrara, Previous Reference, p. 153.

³⁴ Warda Ben Bou Abdallah & Miloud Ben Abdel Aziz, The Specific Nature of Criminalization in Environmental Crimes, Vol. 8, No. 3, 2021, p. 87.

³⁵ Same Reference, p. 88.

³⁶ Al-Saleh Bougrara, Previous Reference, p. 154.

³⁷ Patrick Mistretta, Criminal Responsibility of Ecological Offenders, Doctoral Thesis in Law, Jean Moulin University Lyon 3, 1998, p. 329.

³⁸ Same reference, p. 329.

³⁹ Atallah Zuleikha & Bousaadia Raouf, The Role of Criminal Sanction in Suppressing Environmental Crime, Tabna Journal for Academic Scientific Studies, Vol. 4, No. 1, 2021, p. 733.

⁴⁰ Faraj Saleh Al-Harish, Crimes of Environmental Pollution, Technical Printing and Publishing Institute, without mention of the country of publication, 1998, p. 473.

⁴¹ In this context, regulations regarding administrative penalties indicate that the legislator organized administrative and criminal punishment in parallel without

overlap, as indicated in Article 2/06 of Executive Decree No. 93-165, which mentions the possibility of temporarily declaring the cessation of equipment without affecting other judicial proceedings. Article 02/11 of Executive Decree No. 160/93 stipulates the withdrawal of discharge licenses based on the governor's report, emphasizing no impact on judicial proceedings.

_Al-Saleh Bougrara, Previous Reference, p. 150.

⁴² Ministry of Environment, Arab Republic of Egypt, Control of Industrial Pollution, article published at: <https://www.ecaa.gov.eg>, accessed on August 10.

⁴³ Meriwa Sabah, Protecting the Environment from the Negative Effects of Misuse of Technology, Journal of Legal and Social Sciences, Vol. 6, No. 2, 2021, p. 799.

Bibliography List :

1. Books :

_Ahmad Mahmoud, The Crisis of Clarity in Criminal Pain in Algerian Law and Comparative Law, Volume 1, Dar Houma Publishing, Algeria, 2000 .

_Ashraf Tawfiq Shams Al-Din, Criminal Protection of the Environment, Dar Al-Nahda Al-Arabia, Egypt, 2004 .

_Ashraf Hilal, Intermediary Crimes Between Theory and Practice, Al-Adab Library, Cairo, 2005 .

_Amin Mustafa Muhammad, Procedural Protection of the Environment, Dar Al-Jami'a Al-Jadida Publishing, Egypt, 2002 .

_Aref Saleh Mukhalaf, Environmental Administration, Administrative Protection of the Environment, Al-Yazouri Scientific Publishing and Distribution, Jordan, 2009 .

_Alawi Ali Ahmad Al-Sharafi, Criminal Responsibility of Legal Persons: A Comparative Study, The Democratic Arab Center for Strategic, Political and Economic Studies, Berlin, Germany, 2019 .

_Ali Said, Protection of the Environment from Pollution by Radioactive and Chemical Substances in Algerian Law, Dar Al-Khaldounia Publishing and Distribution, Algeria, 2008 .

_Amar Ouabidi, The Theory of Administrative Responsibility: An Analytical and Comparative Study, University Publications Office, Algeria, 1994 .

_Faraj Saleh Al-Harish, Crimes of Environmental Pollution, Technical Printing and Publishing Institute, without mention of the country of publication, 1998 .

_Mahmoud Ahmad Taha, Criminal Protection of the Environment from Pollution, Manshat Al-Ma'arif, Alexandria, Egypt, 2006 .

_Mustafa Muhammad, Procedural Protection of the Environment, Dar Al-Jami'a Al-Jadida Publishing, Egypt, 2002 .

_Nour Al-Din Hindawi, Criminal Protection of the Environment, Dar Al-Nahda Al-Arabia, Egypt, 1985 .

2. Theses :

A. Doctoral Dissertations:

_El-Wazzah Belassli, Criminal Responsibility of Legal Persons for Economic Crimes, Dissertation submitted for the Doctorate in Law, Mouloud Maameri University of Tizi-Ouzou, 2014 .

_Mbarak Alwani, International Responsibility for Environmental Protection: A Comparative Study, Dissertation for the Doctorate in Law specializing in International Relations, Mohamed Khider University of Biskra, Faculty of Law, 2016-2017 .

_Ali Saydan, Legal Protection of the Environment from Pollution by Hazardous Materials in Algerian Legislation, Doctoral Thesis, University of Algiers, Ben Youssef Ben Khaldia, Faculty of Law, Algeria, 2007 .

_Wanas Yahya, Legal Mechanisms for Environmental Protection in Algeria, Doctoral Thesis, Faculty of Law and Political Science, University of Tlemcen, 2007 .

_Patrick Mistretta, Criminal Responsibility of Ecological Offenders, Doctoral Thesis in Law, Jean Moulin University Lyon 3, 1998 .

B. Master's Theses:

_Saker Abdel Salam, Criminal Responsibility for Industrial Pollution Crimes, Thesis submitted for the Master's Degree in Criminal Law, Faculty of Law, Badji Mokhtar University, Annaba, 2006 .

_Medine Amal, Classified Installations for Environmental Protection: A Comparative Study, Thesis for the Master's Degree in Public Law, Faculty of Law and Political Science, Abou Bakr Belkaid University, 2012-2013 .

3. journal article :

_Al-Saleh Bougrara, The Effectiveness of Criminal Responsibility for Industrial Pollution Crimes, Journal of Scientific Research in Environmental Legislation, Vol. 4, No. 2, 2014 .

_Dabbakh Fawzia, The Role of the Judge in Environmental Protection, Generation of Human Rights Journal, No. 2, Beirut, June 2013 .

_Atallah Zuleikha & Bousaadia Raouf, The Role of Criminal Sanction in Suppressing Environmental Crime, Tabna Journal for Academic Scientific Studies, Vol. 4, No. 1, 2021 .

_Mhyiddin Barbeeh, Criminal Responsibility for Industrial Pollution Crimes, Al-Bahith Journal for Academic Studies, No. 2, 2014 .

_Meriwa Sabah, Protecting the Environment from the Negative Effects of Misuse of Technology, Journal of Legal and Social Sciences, Vol. 6, No. 2, 2021 .

_Warda Ben Bou Abdallah & Miloud Ben Abdel Aziz, The Specific Nature of Criminalization in Environmental Crimes, Vol. 8, No. 3, 2021 .

4. Internet websites:

–Ministry of Environment, Arab Republic of Egypt, Control of Industrial Pollution, article published : <https://www.ecaa.gov.eg>