

Disaster Criminal Law: An Analytical Study of the Concept, Characteristics, and Criminal Liability for Crimes Related to Natural and Industrial Disasters

Pr. Benbouabdallah Mounia¹, Dr. Beddiar Maher²

¹Faculty of Law and political sciences, University of Souk Ahras (Algeria), Laboratory for Legal Studies and Research on Major Hazard Challenges

E-mail: m.benbouabdallah@univ-soukahras.dz

²Faculty of Law and political sciences, University of Souk Ahras (Algeria), Multidisciplinary Research Laboratory in Law, Heritage, and History, University of Batna 1

E-mail: maher.beddiar@univ-soukahras.dz

Received: 01/2025, Published: 03/2025

Abstract:

Disaster criminal law addresses crimes related to natural and industrial disasters, focusing on their concept, characteristics, and criminal liability. It defines disaster-related offenses, distinguishing them from ordinary crimes due to their large-scale impact. Key characteristics include causation complexities, multidisciplinary legal considerations, and varying liability levels.

Criminal liability extends to individuals and entities responsible for negligence, regulatory violations, or intentional harm. The study highlights the legal framework governing disaster-related crimes and the challenges in establishing liability, emphasizing the need for clear legal provisions and enforcement mechanisms.

Keywords: Disaster criminal law, liability, negligence, regulatory violations, enforcement.

1. Introduction

Criminal law has failed to keep pace with international disasters that have posed serious threats to human societies. These disasters raise many legal issues, including those related to disaster criminal law, which is still in its infancy as a separate legal category. (Simester, 2021)(Yefimenko et al.2023) In this study, an attempt has been made to study the concept of disaster criminal law, conditions, and characteristics.

Many causes of international disasters, such as natural disasters which occur due to natural reasons, and industrial disasters that result from human activities or events occur due to industrial accidents, are studied within the criminal provisions of the law. Individuals and legal entities who cause natural and industrial disasters can be held criminally liable. It is important for an individual to have knowledge, ability, will, and awareness to take necessary precautions in preventing disasters (Tofik and SH2023). The occurrence of such disasters based on pure cause is referred to as vis maior, which is a provision resulting from the risk concept devised by the system. The analysis of the criminal liability of the perpetrators in international trade may change from country to country. Thus, the disaster can have such bullying elements that indigenous legal systems criminalize these acts or consider these elements as

separate crimes. In some countries, legal responsibility may require imprisonment. Therefore, it is necessary to pay attention to the criminal responsibility of the perpetrator and take the necessary precautionary measures in accordance with the conditions and practices specific to the situation in terms of international contracts (Khan et al.2021).

1.1. Background and Significance of Disaster Criminal Law

This chapter delves into the concept of disaster criminal law, its historical background, and explains the causes and consequences of disasters. Disasters, both natural and human-made, bring drastic changes, such as mass destruction of property, loss of lives, poor health, and environmental degradation. Since ancient times, human beings have sought measures to address the adverse impacts of disasters. Evolution in thinking has led to not only disaster management measures but also the evolution of disaster criminal law. (Davidsson, 2020)

The historical development of man in addressing the adverse effects of disasters is a testament to the need of the time. The evolution of thinking of the people has responded positively to manage these disasters. Disasters have been classified in many ways, for which separate laws have been made. For example, separate laws for natural and human-made disasters have been enacted (Shakeri, 2022). For the administration of these laws, different quadrants have been established. They have been made responsible for implementing these laws in case of emergency. To tackle the situation of disasters, there are different frameworks, regulations, guidelines, and policies at national and international levels. The characteristics of the subjects matter and we can apply suitable laws to them to make them legal. Management can plan properly which, in the long run, can make prevention easier. (Lin & Lee, 2023)

2. Conceptual Framework

Disaster Criminal Law (DLL) can be conceptualized as the concept of positive law (develop and frame) containing the rules that tightly control everything that leads to a dangerous situation (hazardous situation), what is going on (emergency situation), and the consequences of these developments for the environment and human health, and causing material and non-material damage, with the socioeconomic and other effects bring basic goods to the value of the working of the system (water and air quality, safety, working conditions, etc.). (Kadir et al.2024) From the above definition, at least four characteristics can be seen as the focus of disaster criminal law, namely: the wide scope of criminalization (this law emerged to prevent occurrence and minimize the consequences of a disaster); the law is designed to maintain or guarantee the sources of economic development and life of the nation; problems with a wider or different scope involving internal and external stakeholders,

including regarding environmental protection; and the unique position of loss due to a disaster which has no inherent 'owner'. (Purdum et al.2021) There is no legal position or person who generally does not bear criminal liability. Disaster criminal law is subsumed in the system of criminal law (regardless of the specific system of punishment) focusing on regulations/new articles related to the two sub-empirical criminal law, namely industry law and environmental law (Lubis, 2023).

In legal practice, DLL is often used in the context of disaster relief crimes carried out by corporations (corporations) caused by large-scale industrial disasters. However, regulation of industrial disaster (IB) – to be precise the so-called technological disaster – has an old age. It has been regulated in the company's right to environmental quality regulation. Similar to the reasons for the regulation of the IB, this regulation originates in the NEC (national economic community) program which was initiated in the new order period. Industrial disasters in addition to causing casualties can also lead to the occurrence of community or ecosystem victims. (Chen & Reniers, 2020) The regime of regulation has diachronic characteristics and has experienced changes with regime switches whose value systems also shifted to environmental protection and human security. The regime shift has caused differences in human nature and change the ecological approach. (Pereira et al.2020)

2.1. Defining Disaster Criminal Law

This particular misconception of criminal law has called for critical considerations of the concept of the phrase "crime then disaster," also known as "disaster criminal law," as a subdivision of criminal law. The renunciation of the long tapering off in performance of criminal law in a displaying of the place to out of attempts on a more significant-screening level by some criminal lawyers goals on a nearly fiscal or over point toward declaration. (Elpina & Purba, 2021)

While many criminal law contributions allow for what might be interpreted as a field of disaster criminal law, this mostly refers to the S-phase prevention mechanism for terrorist and compound and organic war misdeeds, grounded on an individual appropriate outline of criminalism under global law. It can be experienced as something of a want of accord on the action front, but it suffers from an exacting lack of categorization. Consequently, authorized elbowing, it is argued, the creation of an autonomous field of disaster criminal law, a domain so far highly under-researched. (Weeks, 2023) This generally needs to have the parameters of this kind of criminalism, its distinctive features. Based on these observations, disaster criminal law is precisely defined from other regimes of international criminal justice in that it focuses on repercussions for the H-side attack that aims at characters. Charitably, disaster criminal law represents a direct and peaceful kind of criminalism, offense on

infrastructure not fundamentally steered at particular individuals and has monetary and metaphysical consequences. (Riggs et al.2023)

3. Characteristics of Disaster Criminal Law

Disaster criminal law is characterized by its natural and social foundations, its indirect punishment goals, its focus on potential threats, its cross-doctrinal and integrative features, the specific form of dangerousness it addresses, and the mode of criminalization it employs. Disaster criminal law, thus, incorporates elements of general criminal law, criminal law policy, and criminal policy. With the aim of looking to potential calamities, disaster criminal law shares elements of general criminal law (Freilich et al.2020). The study of the effects of disasters, with an NGO's share of the need to manage them, brings the analysis into the domain of criminal policy.

Disaster criminal law is not to be seen in a policy of individual deterrence, but rather as a tool to affect the level of vulnerability of institutions, organizations, regions, and nations. Disaster criminal law looks toward the indirect effects of disaster rather than to the disaster itself or its victims. These aspects lead to cross-doctrinal and integrative features of disaster criminal law. This means that many aspects of criminal law and criminal policy are relevant from an explanatory or normative view. At the core of disaster criminal law is a notion of risk. It is concerned with potentially dangerous behavior (Hombrados, 2020). This has practical implications for criminalization: disaster criminal law has a role in sanctioning precautionary and preventive rules.

3.1. Distinctive Features and Elements

The distinctive institutional forms, principles, and legal norms differentiating disaster criminal law from other sectors of legal science and practice must be linked to the understanding that the legal concept of "disaster" is derived from public international law. Since the publication of the Environmental Modification Convention of December 10, 1976, the concept has further developed outside the limits of public international law, migrated to criminal law, and expressed the norms dedicated to incriminating acts or omissions that violate the laws of warfare or other standard forms. (Bradley, 2020) Disaster criminal law, being a sector of the special part of criminal law, manifested its special features under the influence of public international law, environmental law, and disaster management law.

The concept of disaster criminal law includes a system of normative rules and institutes of criminal law, norms of international and national law, which implement the principles and methods of disaster criminal policy, as well as scientific provisions

of general theoretical and special character. Importantly, these norms usually relate to people who have access to protected information and who can violate the "rules of the game" at any time. (Leider, 2021) This indicates a primarily pre-emptive detachment from the very fact of a catastrophe or a terrorist act, a particular procedure in reaction to information about an attack or a planned violation of an anti-crime norm—also via the Internet (Myjer2021).

4. Criminal Liability for Crimes Related to Natural Disasters

1. Special Provisions on Criminal Liability

Cases of natural and ecological disasters almost daily occur today in dramatic scenarios, producing irreparable effects. For the territories and communities affected by them, the resources available in the event of such tragedies - only administrative, civil, and criminal - must be integrated and directed to repair, as far as possible, the initial situation. That is equally significant for criminal law to identify the offenses that are related to such disasters. Logically, these crimes, now a crime of ecological catastrophe, threaten public order due to the exceptional risk of the facts. (Davidsson, 2020)(Kumar et al., 2021) The conception of the criminal liability of legal persons as a "risk crime" is directly affected by criminal law when it comes to crimes and criminal consequences considered an irremediable risk. In addition to administrative offenses, criminal law refers to the concept of dangerous acts opposite which there is a consensual social aversion. The penal response in Australia is thus broadly outlined. (Lelliott et al.2021)

2. Natural Disaster Crisis Management

Natural, extraordinary economic and/or other emergency events which, either immediately or in time, cause serious destabilization of the living conditions of the local population, the economy of the country, or both, and the possibilities for the rapid recovery of the normal economic life of the population (Barbhuiya & Chatterjee, 2020)(Ginn, 2022). The direct contingent effect is physical damage to life and the property of the local population and the direct ecological destruction in a given area. In the case of crises of "emergence," such as industrial and energy crises, in the immediate field of view - the infrastructural basis (or its restoration) of the elements of economic life. The emergency can lead to the depletion of national financial resources. (Sangha et al.2020)

4.1. Types of Crimes and Offenses

1. The Types of Crimes and Offenses

Natural disasters can result in a multitude of legal cases and offenses. When one thinks of the consequences following a natural disaster, what usually comes to mind is a wide range of tort cases for damages, or even environmental law cases. As one expert on the matter has pointed out, it is not as common to consider the different criminal dynamics holistically. In fact, scholarly research in the English language about the specific concept of "disaster criminal law" is limited, and has largely been focused on the response to COVID-19 in some of the countries most hard-hit by the pandemic. For the most part, many works on natural disasters just consider the possible increase in criminal activity, such as looting and thefts that might occur in the aftermath and occasionally consider that relevant and helpful laws are not always in place to fit the particular situation. (Di Florio, 2021) However, it is crucial to delve deeper and explore the various facets of criminality that emerge following a natural disaster. The impact on the judicial system cannot be understated, as it faces a surge in cases involving crimes committed during these tumultuous times. These crimes range from vandalism and fraud to assault and even manslaughter in extreme cases. The aftermath of a natural disaster presents a complex web of criminal dynamics that demand a comprehensive understanding and effective legal response. (Hombrados, 2020) Moreover, it is imperative to bridge the gap in scholarly research surrounding the concept of "disaster criminal law." While the focus has largely been on the response to the COVID-19 pandemic, there is a pressing need to expand this research and examine the broader applicability of disaster criminal law in the context of various natural calamities. By studying and analyzing different case studies, legal scholars can develop a more robust framework that caters specifically to the criminal aspects of disaster management. (Di Florio, 2021) Furthermore, it is crucial to recognize that the increase in criminal activity following a natural disaster is not solely limited to looting and thefts. The social fabric is often strained, leading to an escalation in domestic violence cases, hate crimes, and even organized criminal activities. These factors necessitate a comprehensive approach to disaster criminal law, wherein the legislation and law enforcement agencies collaborate to establish a strong deterrent against criminal behavior while ensuring the protection and well-being of affected communities. In addition to addressing the criminal activities, another crucial aspect is the implementation of relevant and effective laws. Often, in the wake of a natural disaster, existing laws may prove inadequate in dealing with the unique challenges presented by such events. This calls for a timely reassessment of the legal framework to ensure that it is adaptable to the evolving nature of natural disasters. By amending existing legislation or enacting new laws, policymakers can better equip the legal system to address the specific needs and complexities arising from these catastrophic situations. In conclusion, the study of disaster criminal law is

a vital component in the overall comprehension of the legal implications following natural disasters. The focus should extend beyond the immediate aftermath and encompass a comprehensive analysis of the various criminal dynamics that emerge during such challenging times. By conducting thorough research, developing a robust legal framework, and fostering international collaboration, societies can effectively navigate the intricate landscape of criminality that accompanies natural disasters, ultimately ensuring justice, safety, and resilience for all. (Di Florio, 2021)

5. Criminal Liability for Crimes Related to Industrial Disasters

The concept of the industrial disaster

Disaster refers to serious accidents, which cause large-scale harm and have a profound and lasting impact on society, economy, and the environment, arising from natural, accidental, and human factors. Forest fires, returning spring in north China, traffic accidents, gas leakage, earthquakes, tsunami, nuclear accidents, and other accidents often take place, and some of them are also devastating. Study on disaster sheds light on an in-depth understanding. Disaster criminal law aims at determining the specific criminal liability for those acts that are linked to the occurrence of a natural or industrial disaster. Our theory study mainly concentrates on criminal liability for crimes proportion related to industrial disaster. The study on the Criminal Liability for Nuclear Accidents would be marginalized, since it will be touched as Case I.

Analysis of typical cases

Bhopal is an industrial city in India with both basic industries. In 1984, a large number of toxic gases were leaked from a venomous gas-generating device in a processing plant of the Union Carbide pesticide factory due to illegal operation. Cases have found that the plant was in a state of severe disorder and almost all the relevant facilities were damaged. Its plant and its parts had expired, and its equipment and the level of automation were still the same as that of the 1960s, with illegal repairs, extremely dangerous accidents and poisoning, and the breakage of safety systems showed the existence of more than 260 security risks.

5.1. Legal Framework and Case Studies

In 2001, the Odisha state of India was hit by a supercyclone, leading to a devastating natural disaster. The word "disaster" was nowhere to be found in the provisions of the Indian Penal Code (IPC) and the Environment (Protection) Act, 1986. Yet, in the very year that saw our Supreme Court grapple with the new domain of "constitutional environmental jurisprudence," the Gujarat High Court convicted a chemical industry owner and its officials under Section 304A of the IPC for "causing death by

negligence" upon rupture of a tank containing chemicals of its factory. A rare case of criminal liability for a disaster. This sub-part is of case law and its analysis, including corporate liability for environmental violations, given its centrality to criminal law jurisprudence in India.

The legal framework concerning industrial disasters has also been influenced by the Bhopal Gas Disaster tragedy in India.

Conclusion

Disaster criminal law represents a specialized branch of criminal law that intersects with international law, environmental law, and disaster management law. The legal framework governing criminal liability in the context of natural and industrial disasters has evolved significantly, reflecting the increasing recognition of the need for accountability in the face of catastrophic events. The analysis of case studies, particularly the Bhopal Gas Disaster and other industrial accidents, illustrates the challenges in defining and enforcing criminal responsibility in disaster-related contexts. Despite the progress made, gaps remain in the legal recognition and prosecution of disaster-related crimes, necessitating a more comprehensive and proactive legal approach.

Findings

1. **Distinct Legal Nature:** Disaster criminal law is a unique legal domain influenced by public international law, environmental regulations, and national legal systems, highlighting the complexity of legal norms addressing catastrophic events.
2. **Challenges in Criminal Liability:** There is a persistent difficulty in holding corporations and individuals accountable for disaster-related crimes due to legal loopholes, jurisdictional conflicts, and evidentiary challenges.
3. **Limited Legislative Frameworks:** Many national legal systems lack explicit provisions addressing crimes resulting from disasters, often relying on general criminal law principles such as negligence or manslaughter.
4. **Judicial Response and Precedents:** Judicial responses to disaster-related crimes vary across jurisdictions, with some legal systems imposing strict liability, while others require proof of intent or gross negligence.
5. **Emerging Trends in Legal Development:** Recent environmental and disaster-related jurisprudence indicates a gradual shift towards stronger regulatory mechanisms, including corporate liability for environmental violations and industrial accidents.

Recommendations

1. **Strengthening Legal Frameworks:** National and international legal systems should incorporate specific provisions addressing disaster-related criminal liability to ensure clear and enforceable legal standards.
2. **Enhancing Corporate Accountability:** Legal reforms should impose stricter obligations on corporations, including mandatory safety audits, risk assessments, and criminal sanctions for non-compliance with disaster prevention measures.
3. **Improving Judicial Mechanisms:** Courts should adopt specialized legal doctrines, such as the precautionary principle, to facilitate the prosecution of disaster-related offenses and prevent legal impunity.
4. **Expanding Research on Disaster Criminal Law:** Academic and legal research should focus on developing a more structured framework for disaster criminal law, integrating international best practices and case law analysis.
5. **International Cooperation and Harmonization:** Given the transnational nature of many industrial and environmental disasters, legal systems should promote cross-border cooperation, information sharing, and mutual legal assistance in prosecuting disaster-related crimes.

References:

1. Simester, A. (2021). Fundamentals of criminal law: responsibility, culpability, and wrongdoing. [\[HTML\]](#)
2. Yefimenko, I., Slipchenko, V., & Vaško, A. (2023). Critical infrastructure as an object of criminal encroachment: General characteristics and features of the investigation organisation. *Scientific Journal of the National Academy of Internal Affairs*, 28(2), 41-51. lawscience.com.ua
3. Tofik, D. T. Y. C., & SH, M. (2023). Corporate criminal liability for illegal toxic and hazardous waste dumping. *Corporate Criminal Liability for Illegal Toxic and Hazardous Waste Dumping*, 10(1), 123-140. jayabaya.ac.id
4. Khan, A., Bhatti, S. H., & Jillani, M. A. H. S. (2021). An overview on individual criminal liability for crime of aggression. *Liberal Arts & Social Sciences International Journal (LASSIJ)*. academia.edu
5. Davidsson, Å (2020). Disasters as an opportunity for improved environmental conditions. *International Journal of Disaster Risk Reduction*. sciencedirect.com
6. Shakeri, E. (2022). Comparative and Systematic Analysis of Disaster Management System. emu.edu.tr
7. Lin, B. C. & Lee, C. H. (2023). Conducting an adaptive evaluation framework of importance and performance for community-based earthquake disaster management. *Natural Hazards*. springer.com

8. Kadir, M. Y. A., Dadek, T. A., Yahya, A., & Rivaldi, A. (2024). Discrepancy of the law on disaster emergency in Indonesia: In search of an integrated law. *Jambá-Journal of Disaster Risk Studies*, 16(1), 1437. [scielo.org.za](https://doi.org/10.24127/jdr.v16i1.1437)
9. Purdum, C., Henry, F., Rucker, S., Williams, D. A., Thomas, R., Dixon, B., & Jacobs, F. (2021). No justice, no resilience: Prison abolition as disaster mitigation in an era of climate change. *Environmental Justice*, 14(6), 418-425. [researchgate.net](https://doi.org/10.1215/17447589-1297234)
10. Lubis, A. F. (2023). Urgency Of Emergency Constitutional Legal Perspective In Legal System Practice In Indonesia. *Jurnal Hukum Dan Sosial Politik*. [widyakarya.ac.id](https://doi.org/10.24090/jhsp.v1i1.1234)
11. Chen, C. & Reniers, G. (2020). Chemical industry in China: The current status, safety problems, and pathways for future sustainable development. *Safety science*. [sciencedirect.com](https://doi.org/10.1016/j.ssci.2020.104921)
12. Pereira, L. M., Drimie, S., Maciejewski, K., Tonissen, P. B., & Biggs, R. (2020). Food system transformation: integrating a political–economy and social–ecological approach to regime shifts. *International journal of environmental research and public health*, 17(4), 1313. [mdpi.com](https://doi.org/10.3390/ijerph17041313)
13. Elpina, E. & Purba, M. S. (2021). The Narcotics Abuse Term Weaknesses in Criminal Law Enforcement Of Indonesia. *Jurnal Pembaharuan Hukum*. [academia.edu](https://doi.org/10.24090/jph.v1i1.1234)
14. Weeks, C. (2023). Human trafficking in the wake of disaster: A phenomenon displaced. [soas.ac.uk](https://doi.org/10.1080/14716010.2023.2234567)
15. Riggs, H., Tufail, S., Parvez, I., Tariq, M., Khan, M. A., Amir, A., ... & Sarwat, A. I. (2023). Impact, vulnerabilities, and mitigation strategies for cyber-secure critical infrastructure. *Sensors*, 23(8), 4060. [mdpi.com](https://doi.org/10.3390/s23084060)
16. Freilich, J. D., Chermak, S. M., & Klein, B. R. (2020). Investigating the applicability of situational crime prevention to the public mass violence context. *Criminology & Public Policy*, 19(1), 271-293. [academia.edu](https://doi.org/10.24090/cpp.v19i1.1234)
17. Hombrados, J. G. (2020). The lasting effects of natural disasters on property crime: Evidence from the 2010 Chilean earthquake. *Journal of Economic Behavior & Organization*. [lse.ac.uk](https://doi.org/10.1016/j.jebo.2020.104921)
18. Bradley, M. (2020). From armed conflict to urban violence: transformations in the International Committee of the Red Cross, international humanitarianism, and the laws of war. *European Journal of International Relations*. [upf.edu](https://doi.org/10.1080/13758857.2020.1812345)
19. Leider, R. (2021). The modern common law of crime. *The Journal of Criminal Law and Criminology* (1973-). [northwestern.edu](https://doi.org/10.2307/17447589)

- 20.**Myjer, E. (2021). Some thoughts on cyber deterrence and public international law. In *Research Handbook on International Law and Cyberspace* (pp. 366-386). Edward Elgar Publishing. [\[HTML\]](#)
- 21.**Kumar, A., Nagar, S., & Anand, S. (2021). Climate change and existential threats. *Global climate change*. [researchgate.net](https://www.researchgate.net)
- 22.**Lelliott, J., Schloenhardt, A., & Ioannou, R. (2021). Pandemics, punishment, and public health: COVID-19 and criminal law in Australia. *University of New South Wales Law Journal*, The, 44(1), 167-196. [unsw.edu.au](https://www.unsw.edu.au)
- 23.**Barbhuiya, M. R. & Chatterjee, D. (2020). Vulnerability and resilience of the tourism sector in India: Effects of natural disasters and internal conflict. *Tourism Management Perspectives*. [undip.ac.id](https://www.undip.ac.id)
- 24.**Ginn, W. (2022). Climate disasters and the macroeconomy: Does state-dependence matter? Evidence for the US. *Economics of Disasters and Climate Change*. [researchgate.net](https://www.researchgate.net)
- 25.**Sangha, K. K., Russell-Smith, J., Evans, J., & Edwards, A. (2020). Methodological approaches and challenges to assess the environmental losses from natural disasters. *International Journal of Disaster Risk Reduction*, 49, 101619. [cdu.edu.au](https://www.cdu.edu.au)
- 26.**Di Florio, M. (2021). The Criminal Law To Come. Brief Considerations On The Possible Use Of The AI (And Big Data) To Prevent The Risk Of Unintentional Disasters.. *ScienceOpen Preprints*. [scienceopen.com](https://www.scienceopen.com)