

The role of international organizations in protecting the marine environment from pollution by hazardous substances and wastes: "IAEA and IMO model"

Ourida Djendli

University of August 20, 1955, Skikda(Algeria) ,Faculty of Law and Political Sciences,Maritime transport and ports laboratory in Algeria

o.djendli@univ-skikda.dz

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Abstract:

Pollution resulting from hazardous materials causes serious damage to the environment, so international organizations of all kinds and fields seek to protect the environment and mitigate the risks of pollution, whether through the development of international legal rules for the environment, or through the issuance of decisions and recommendations, and among the organizations working in the field of environmental protection We mention, for example, the International Atomic Energy Agency and the International Maritime Organization, and we aim through this study to stand on the role of the two organizations in protecting the environment and the difficulties they face.

Keywords: pollution risks, International Atomic Energy Agency, International Maritime Organization, environmental protection.

1. Introduction

Environmental crimes are a serious threat to the ecosystem owing to changes in society's development and life development in all their areas. This has led most States to pay attention to environmental issues. Many local and international conferences have been concluded, and many national laws have been enacted to protect them.

Because of the enormous technological development, the widespread prevalence of marine and ocean pollution has exacerbated, causing changes in ecosystems as a result of leakage of hazardous substances regardless of their chemical, petroleum, radioactive waste, etc., where pollution is generally defined as any change in the natural composition of water, air or soil; They become unusable, through an increase in the quantities of certain substances, or the introduction of foreign substances into these circles.

The topic of environmental protection has taken up much of the attention of international organizations, which, together with the United Nations, are taking the necessary measures to protect the environment, and have sought to develop international legal norms for the environment, and to issue decisions and recommendations periodically in order to induce States to contribute to the protection and mitigation of the environment from pollution.

Through this study, we aim to address some international organizations working in the environmental field, with a view to identifying their most important activities contributing to environmental protection. Regardless of the number of international organizations dealing with environmental matters, whether governmental or non-governmental, global or specialized, we have selected two international organizations, the International Atomic Energy Agency (IAEA) and the International Maritime Organization (IMO).

What is the role of these international organizations in protecting the environment from pollution by hazardous substances? What difficulties do you face? To answer this problem, we follow the following steps:

2. First Level Title one :Conceptual framework for the marine environment and hazardous materials

Before addressing international organizations concerned with environmental protection with hazardous substances, we know the concept of the marine environment and hazardous substances in loyal claims.

First requirement: Concept of the marine environment

Identifying the concept of the marine environment requires defining it from different angles and demonstrating its importance in maintaining the biological balance on Earth's brightness.

2.1.Second Level Title one : Definition of the marine environment

The marine environment means all areas of saltwater that represent an interconnected mass that is interconnected with the parts, whether natural or industrial, and all aspects of marine life. (Hilal, 2005, p. 86)

The term "marine environment" is used to refer to a part of the Earth's area that is submerged by saline water, where these parts relate unimpeded, in the sense that the marine environment is those salty, interrelated bodies of water that include animal and plant organisms and natural wealth that, as a whole, constitute elements of marine life as an integrated ecosystem (Sayeh Kheira, 2021, p. 115)

The marine environment is divided into several areas defined by the 1982 United Nations Convention on the Law of the Sea with the aim of facilitating maritime operations, defining the rights and obligations of coastal and other States and making each State responsible for its own borders and exercising its sovereignty within the authorized limits, namely: inland waters, territorial waters, adjacent areas, exclusive economic zone, continental shelf and high seas.

2.1.1. Third Level Title one :Importance of the marine environment

The marine environment, with all its components of rivers, seas and oceans, plays a major role in maintaining the biological balance of the globe and preserving human life. The marine environment covers more than 70 percent of the Earth's surface (Nasrallah, 2011, p. 22)

The importance of the marine environment is reflected in several aspects:

- Achieving climate balance, through the natural water cycle, where it absorbs the sunlight that falls on the ground and then evaporates a portion of the water into the atmosphere depending on the rising wind and then collects it in the form of clouds resulting in rain (Al-Hassan, 2013, p. 65)

Man's marine environment also provides enormous fish wealth, both in terms of quantity and species, to meet its various food needs. This has led coastal and land-locked States to develop several legislation aimed at protecting the marine environment and all that could harm the seas and oceans and undermine the biological balance that threatens the continuation of life on Earth. (al-Manyawi, 2008, p. 29)

Section I: Definition of marine pollution

Water pollution is defined as: "spoiling or damaging the quality of water, causing an ecosystem malfunction and reducing its ability to perform its natural role, but becoming harmful when used, or losing much of its economic value, especially its fish and aquatic resources. (Hadaaj, 2018, p. 115)

Marine pollution is also defined in article 1, paragraph 4, of the 1982 United Nations Convention on the Law of the Sea as "The introduction of human beings into the marine environment, including river casualties directly or indirectly, substances or energy that result in or are likely to result in harmful effects such as damage to living resources and marine life and endangering human health and

impeding marine activities, including fishing and other legitimate uses of the sea, degrading the quality of usability of seawater and reducing the promotion of "

Section II: Definition and forms of hazardous substances

Before identifying the forms of hazardous substances, we refer to their definition as follows:

I. Definition of hazardous substances

Hazardous substances means substances with hazardous properties that adversely affect the environment such as toxic, explosive, inflammable or ionizing radiation hazardous wastes are the residues of various activities and processes that retain the properties of hazardous substances and do not have original or alternative uses such as wastes from therapeutic activities or wastes from pharmaceuticals, medicines, dyes, paints... etc. (Hilal, 2005, p. 100)

We conclude from the foregoing that hazardous substances are original. Wastes are residues of the original substances, but hazardous substances are not different from both.

Forms of hazardous substances and wastes

The forms of hazardous substances and wastes consist of chemicals, radioactive wastes and explosive substances, the statement of which reads as follows:

1- Chemicals

Chemical pollution is one of the most dangerous types of human-induced pollution, defined as chemicals with invasive, liquid and solid condition that have toxic properties that cause danger to the environment and the overall health of humans and living organisms (Nasrin Noweri, 2023, p. 337)

Chemicals and industrial waste are dumped into watercourses, negatively affecting plant or animal marine species and disrupting the

biological balance of the marine environment, including seas, oceans and rivers (Attiya, , 2009, p. 193)

2- Radioactive waste

Radioactive waste is defined as: "The remnants of nuclear reactions used in atomic reactors, for many purposes, including research and production of radioisotopes for peaceful, therapeutic and warfare uses, thus residual radioactive elements after loss of radioactivity (Ben Umar Mohamed, 2018, p. 7)

Radioactive or nuclear wastes are also hazardous wastes and can be divided as follows:

- a- Low-level nuclear waste: consisting of materials contaminated with radioactive materials, reactor water treatment residues, medical tubes, spaces and injection needles.
- b - Intermediate-level nuclear waste: consists of nuclear reactor parts and contaminated materials from decommissioned reactors.
- c - High-level nuclear waste: formed after the burning of nuclear fuel, produced by uranium extraction, represents more than 95% of radioactivity in the process of power generation from nuclear sources (Mahmoud, 2021).

These tailings are also caused by military activities, the quantity of which is difficult to quantify. Military activities and industries are often carried out in a covert manner, and radioactive waste from tactical and military bombs results in significant pollution in all seas and oceans. (Nasrallah, 2011, p. 44)

3-Explosive Material

Explosives are solid, liquid or mixture waste of a chemical compound, which, when chemically reactive, can release gas at the temperature, pressure and speed of causing destruction of the surrounding areas. They are substances that disintegrate very rapidly when the explosion agent is available and generate heat, flame, shock (ammonia nitrate,

nitroglycerin, trinitrate coloring), these materials can explode when combined with other materials (Nasrin Noweri, 2023, p. 338)

Given the gravity of these materials and wastes, the International Atomic Energy Agency (IAEA) and the International Maritime Organization (IMO) are working to cope with the damage caused by these materials in order to protect the environment.

3.First Level Title two: The role of the International Atomic Energy Agency (IAEA) and the International Maritime Organization (IMO)

The International Atomic Energy Agency (IAEA) and the International Maritime Organization (IMO) shall pursue the objectives to be achieved in accordance with its Statute, including the protection of the environment from radioactive contamination, and we shall address them successively:

3.1.First Level Title two: IAEA's role in protecting the environment from hazardous substances pollution

Before disclosing the IAEA's role in protecting the environment from hazardous substances contamination, we know the Agency's role as follows:

Section I: Definition of the International Atomic Energy Agency

The International Atomic Energy Agency (IAEA) is one of the organizations concerned with preserving the environment from pollution caused by human use of atomic energy in cooperation with States and specialized organizations to reduce the adverse effects of human beings. (Hadithi, 2010, p. 117) Established in 1957 in Vienna, it is concerned with preserving the environment from pollution from the use of atomic energy. (Ali, 2021, p. 1287)

The Agency has endorsed the outline for the prevention of radioactive contamination of individuals and the environment after its monitoring and has identified methods for the disposal of radioactive wastes, and

has emphasized the need to prevent pollution of the seas and oceans by nuclear waste. (Sami, 2021, p. 234)

One of the Agency's functions under article III of its statute is to promote research into energy in peace, health and prosperity around the world. in addition to encouraging the exchange of scientists and experts in the same field and establishes safety standards with a view to protecting health and reducing risks to life, property and property in coordination with specialized agencies, The IAEA-wide Division of Information Management also assesses the physical balance and analytical results of nuclear material, non-nuclear material and environmental samples.

Section II. IAEA's powers to protect the environment from pollution by hazardous substances

The International Atomic Energy Agency (IAEA) has several powers, the most important being, but not limited to, the following: IAEA contributed to the development of international norms and standards for the peaceful transport of atomic materials, when the Regulations on the Safety of Transport of Radioactive Materials 1973 enacted (Slini Mohammed Al-Sageer, 2021, p. 506)

It also contributed to the outline of monitoring and prevention of radioactive contamination of individuals and the environment of all kinds, and emphasized the prevention of ocean pollution from nuclear waste in the context of protecting the marine environment from pollution from the use of atomic energy (Ali, 2021, p. 1287)

In 1984, IAEA proposed instructions to arrive at measures between Member States to provide mutual assistance in the event of a nuclear accident and a radiological crisis. It should be noted that the instructions are recommendations that were not legally binding and were not taken into account by the nuclear-producing States (Hadithi, 2010, pp. 118-119).

The Agency was also mandated to examine the results of the 1986 explosion of the former Soviet Union's Chernobyl nuclear reactor and to provide the necessary framework for the development of international standards on nuclear accidents of international dimensions. International Atomic Energy Agency (IAEA) Board of Governors adopted a resolution on 21 May 1986 mandating a panel of experts to draft an international convention on nuclear accidents. After meeting from 22 to 24 September 1986, this group prepared two draft conventions. At the IAEA General Conference, held at an extraordinary meeting on 26 September 1986, these conventions were adopted and then entered into force (Slini Mohammed Al-Sageer, 2021, p. 506)

The International Atomic Energy Agency (IAEA) announced in 1988 the development of a large-scale early warning network, which contributes to warning States of the potential for pollution resulting from an accident at a nuclear power plant (Hadithi, 2010, p. 157)

On the other hand, the IAEA is working to ensure the proper operation, closure and decommissioning of nuclear facilities, as well as to confirm the proper circulation of radioactive materials, leading to the possibility of reducing radioactive leakage of the environment, without forgetting the Agency's involvement in another area, namely the treatment of contaminated sites and the proper disposal of radioactive waste.

The Agency signed a memorandum of understanding with UNEP in 2007 to initiate collaborative work aimed at developing and improving national and regional capacities to help reduce the degradation of coastal and marine areas in the large Caribbean region (Seto, 2008, pp. 8-10).

IAEA has also adopted numerous resolutions on the Middle East's denuclearization. However, Israel has not received any attention. To date, Israel continues to refuse to comply with it, refuses to place its nuclear facilities under international control and refuses to accede to the relevant treaties. (Mustafa, 2020, p. 347)

We conclude from the foregoing that the Agency's important role is reflected in the creation of its own programme of assistance to provide adequate protection to human beings and the environment in which it lives from the effects of tailings and nuclear wastes. The Agency is also working to disseminate information on waste and procedures necessary for the management of such wastes.

Accordingly, the Agency has a preventive role by seeking to prevent the occurrence of radioactive waste contamination on the one hand and the role of its treatment, through which it contributes to the treatment of places suffering from environmental pollution.

However, despite the Agency's efforts and serious efforts to reduce contamination with hazardous substances and radioactive wastes, it has not been able to eradicate pollution in an absolute manner, because of the nature of radioactive wastes, the difficulty of establishing liability and the lack of obligation on the part of States to protect the environment.

Second requirement: IMO's role in protecting the environment from hazardous substances pollution

The International Maritime Organization (IMO), like other international organizations, has taken an interest in environmental affairs and endeavoured to prevent environmental pollution from worsening.

Section I: Definition of IMO

IMO has been a specialized United Nations agency since 1958, headquartered in London, United Kingdom, with five regional offices in Côte d'Ivoire, Ghana, Kenya, the Philippines and Trinidad and Tobago. According to statistics from 2019, 174 States, as well as 3 associate members, and more than 145 observer organizations, regardless of being an intergovernmental or non-governmental organization, the organization adopts six languages: Arabic, Chinese, English, French, Russian and Spanish (IMO)

It is the body responsible for improving the safety of navigation and preventing pollution from ships, adopts decisions and recommendations prepared by the auxiliary bodies and elects a council. The latter acts as a governing body between the Assembly's meetings and coordinates the activities of the auxiliary bodies, including both the Navigational Safety Committee and the Marine Environment Protection Committee, which lead the main work on chemicals. (Amna, 2020, p. 233)

section II: International Maritime Organization for the Protection of the Environment from Hazardous Substances Pollution

One of IMO's prerogatives is to establish standards on safety, security and environmental performance of international shipping and its basic powers are to establish a regulatory framework for the global shipping industry, Where this regulatory framework is fair, effective and universally adopted Not only is it, but it must be universally applied in order to create a level playing field so that financial issues do not overshadow the provision of environmental safety and security, Its governing bodies consist of the Assembly and the Council, comprising Member States, and five core committees comprise seven subcommittees. (IMO)

The organization adopts several objectives that stand out through its motto (safe, secure and effective shipping in clean oceans). The organization's main objectives are to define international shipping policies and deter shippers from threatening maritime security and public safety. (sartawi)

IMO has begun to implement an ambitious programme of action to prevent and respond to marine pollution as well as aspects of liability and compensation as a result of major oil pollution events, such as the 1967 Torre Canyon Torrey off the United Kingdom's south-western coast.

One of the main results of its programme was the ratification of MARPOL 1973, universally known as the MARPOL Convention.

International Maritime Organization (IMO) added an annex VI to the International Convention for the Prevention of Pollution from Ships in 1997, which deals with air pollution from ships and annex VI addresses air pollution from sulphur and other harmful emissions, Such as nitrogen oxides and particulate matter, in 2011 IMO became the first international regulatory body in the transport sector to adopt binding energy efficiency requirements. applicable to all ships globally, regardless of trade method or flag State, and aimed at preventing the emission of gases in international shipping activities. (Kim, 2024).

Over the years, IMO has made remarkable achievements in terms of the number and adoption of 75 new international conventions. These conventions aim to prevent accidents and injuries, cause environmental damage and mitigate the consequences of accidents.

It also contributed to reducing the global sulphur limit outside emission control zones to 0.50% (Mass/Mass), up from 3.5% (Mass/Block), starting from 1 January 2020 and reflecting IMO's commitment to ensure that shipments are fulfilled, and the Organization is committed to working through its member States and partners to continue to develop and implement a set of global regulations to ensure the sustainable use of the oceans and seas (Kim, 2024).

The International Maritime Organization (IMO) has also contributed to environmental awareness through applied research for the protection of endangered species, as well as the establishment of marine environmental research centres aimed at the sustainable development of coastal environmental resources.

International organizations seek to protect the environment through the creation of mechanisms and methods that, along with the development of international legal norms, include the development of the regulatory function by monitoring changes that occur as a result of environmental damage. International organizations must collect,

analyse and then disseminate sufficient information in many areas. (Hadja, 2019, p. 141)

It follows from the foregoing that IMO is also working hard to preserve the marine environment by creating a legal arsenal containing binding legal rules that entail international responsibility for States that breach their obligations to protect the environment. (Quridi, 2021, p. 203) s role in protecting the environment through the establishment of research centres and research that highlight the risks of environmental harm to the ecosystem and to living organisms in general, thereby contributing to sustainable development.

Conclusion

Through the above, it is clear that international organizations' interest in the topic of environmental protection stems from environmental risks resulting from environmental exposure to pollution. in order to protect the environment from pollution by hazardous substances, We have reached a number of conclusions and recommendations, which we summarize as follows:

First: Results

- International environmental protection organizations play an active role in environmental protection.
- The role of international organizations is no longer limited to participation in international conferences, but to the establishment of international standards and norms with an environmental dimension.
- Reports and recommendations made by international organizations alone are insufficient to deter States from committing environmental pollution offences because they do not possess the status of legal obligation. International conventions binding on States need to be concluded in this area.
- Although IEA and IMO have contributed to the development of environmental programmes to eliminate pollution, this goal has not yet been fully achieved.

Second: Recommendations

- The need to intensify international control by all States without exception over the methods of dumping and disposal of radioactive wastes in the marine environment.

- Activate the role of the media in disseminating environmental awareness and awareness of the risks of environmental pollution in all fields.
- Pollution affecting a common humanitarian interest must be included as a punishable international crime.
- States must be obliged to cooperate with international organizations in order to protect the environment and assume their responsibility for breaches of these obligations.
- The need to establish a global organization with exclusive specialization in environmental affairs with its own executive body with the capacity to oblige States to take responsibility for environmental crimes.

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