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The international legal framework for environmental sustainability in global shared areas: An approach between treaty obligations and the limits of sovereignty

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Abstract---This study reviews the international legal framework for ensuring environmental sustainability in globally shared areas beyond national sovereignty, focusing on the structural tension between multilateral treaty obligations and the constraints of political sovereignty. This is particularly true in light of the continued rise in the use of nuclear energy and the increasing risks associated with radioactive contamination and its negative environmental impacts on the ecosystems of these areas, which are considered common human heritage. This paper highlights the legal challenges related to balancing international interests and states' obligations to protect these areas in accordance with the principles of international law amidst the complexities of sovereignty and national policies. This study also addresses the extent to which international law can adapt environmental treaties to address these sensitive issues, given the absence of a comprehensive legal framework that effectively regulates these areas.

Keywords---Environmental sustainability, international environmental law, radioactive contamination, transboundary nuclear damage, political sovereignty, multilateral treaty obligations, globally shared areas.

Introduction

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In recent decades, environmental issues have become a core concern of international legal concerns, given the growing transboundary environmental damage and the extension of its effects to areas outside the sovereign domain of states, known in international law as "global commons." This issue arises in light of the escalation of technological and scientific activities, particularly the intensive use of nuclear energy, and the resulting radioactive hazards that threaten environmental stability in these areas, which are considered part of humanity's common heritage, such as the high seas, outer space, and Antarctica. However, the legal treatment of environmental problems often clashes with established legal principles of international law, such as the principle of non-interference, domestic jurisdiction of states, and principle of sovereignty. This causes the relationship between environmental protection and these legal principles to often revolve between the two poles of legal rules and political reality.

In this context, the fundamental difficulty of reconciling the principle of territorial sovereignty of states, on the one hand, and the environmental obligations enshrined in international agreements, on the other, becomes apparent. This raises complex legal issues related to the limits of states' regulatory authority in areas outside their jurisdiction and the possibility of holding them accountable for damages resulting from their actions with transboundary effects. Hence, the difficulty in resolving dilemmas related to environmental protection and pollution preservation arises. This is because environmental issues are of a special nature that do not recognize borders, while the principle of non-interference and the concept of sovereignty and internal jurisdiction mostly revolve within the territorial borders of the state, through states' adherence to the principle of internal non-interference and the concept of sovereignty in the event of a conflict of an environmental nature.

If this is the case within the sovereign territorial borders of states, what is the situation in areas that constitute a common human heritage among all countries of the world, where there is no single sovereignty and everyone is sovereign for the common good of humanity? What are the implications of treaty obligations for establishing the foundations of environmental sustainability in these regions? Based on the idea that if one state claims its sovereign right to act as it sees fit, another state can claim that its sovereignty is affected by transboundary interference through certain environmental practices in a shared area. Here, all cards appear to be scattered and confused between law and politics.

On this basis, this study seeks to analyze the international legal framework governing environmental sustainability in shared global areas by examining relevant treaty mechanisms and assessing their effectiveness in the absence of a comprehensive and binding legal system in the Arctic. It also seeks to resolve the existing tension between multilateral environmental obligations and sovereign considerations that continue to govern states' interactions with global environmental challenges. [1]
Analytically, what is meant here by "areas not subject to state sovereignty" are those areas located beyond the territorial limits of states, whose ownership is considered common to all countries of the world. These areas include the high seas, Antarctica, and outer space, respectively.

First: The legal nature of global commons in international law

Global commons are among the most complex legal concepts in international law. International law, given its special nature, places it outside the territorial sovereignty of any state. According to established jurisprudence and international agreements, these areas include the high seas, outer space, the Antarctic, and the deep seabed beyond the limits of national jurisdiction. [2] International law has adopted the principle of the "common heritage of mankind" as the primary legal basis for regulating relations with these spaces. This principle has been evident since the 1960s and is explicitly enshrined in several international legal texts, including:

- Article 136 of the 1982 United Nations Convention on the Law of the Sea, which states that "the Area and its resources are the common heritage of all mankind"
- The Preamble to the 1967 Outer Space Treaty, which affirmed that outer space should be used for the benefit of all states without discrimination;

- The 1959 Antarctic Treaty, which temporarily suspended all claims to sovereignty over the continent and dedicated its use to peaceful and scientific purposes only.

This legal nature raises significant practical challenges for the industry. While international treaties oblige states to refrain from exercising traditional forms of sovereignty, they also maintain the voluntary nature of compliance, weakening the effectiveness of environmental protection in these areas.

The increasing exploitation of resources in these areas—whether for navigation, mining, or nuclear research—has generated profound legal problems, particularly in the absence of unified international oversight mechanisms and the divergent will of states to restrict their activities in these areas. A central question arises: To what extent can international law be adapted to govern the sustainable use of these areas, given the dominance of national sovereignty? From this perspective, it appears that environmental sustainability in shared global areas cannot be achieved solely through rigid legal text. Rather, it requires a delicate balance between collective contractual obligations and the constraints imposed by considerations of political sovereignty, within the framework of what may be termed "transboundary environmental governance."

Second: Legal Protection of Environmental Sustainability on the High Seas

The high seas are beyond the sovereignty of states, making them vulnerable to the most dangerous forms of environmental insecurity. The world has recently begun to pay attention to this and has recognized a growing trend toward protecting these areas from pollution and achieving environmental security. [3]

Considering the high seas, we find that they are areas that are not subject to control, seizure, or ownership. They are free zones whose right to use is guaranteed by all states. [4] These zones represent a common domain governed by the fundamental principle of "the freedom of the high seas." This principle grants all states the right to exercise certain freedoms, [5] such as freedom of navigation, fishing, laying cables and pipelines, overflight, and freedom of scientific research. However, the principle of freedom on the high seas can devolve into destructive chaos without limits. Therefore, international law is concerned with establishing controls that ensure the exercise of these freedoms within its framework of international law and adherence to its provisions. [6]

If a state exercises the freedoms recognized on the high seas, it is obligated not to harm the exercise of other states' freedoms in the area. Therefore, if a state's exercise of the freedoms granted to it on the high seas results in the pollution of this area with crude oil, the burial and dumping of harmful or radioactive waste, or any other harmful pollutants, that state will have abused these freedoms and will bear full responsibility if harm to the international community results. [7]. Moreover, the exercise of freedom with these violations loses its legitimacy, becomes tainted with arbitrariness, and constitutes an unjustified obstacle to the freedoms of other members of the international community in achieving their interests, the most important of which is protecting the marine environment from pollution. [8].

In recent years, the international community has witnessed a radical development in the trend toward cooperation to restrict freedom of navigation on the high seas to protect the marine environment from the dangers of pollution and achieve environmental security. The most important fruits of this development were the 1969 Brussels Convention and the 1973 London Protocol, respectively. [9]

• The 1969 Brussels Convention on Intervention at High Seas:

The International Convention on Intervention on the High Seas in Situations Which Lead or May Lead to Pollution by Petroleum Oil was concluded in Brussels in 1969, following the devastating incident to the marine environment resulting from the Liberian oil tanker "Tory Canyon" accident in 1967, which captured the attention of the international community and aroused global public opinion at the time. [10]

The Brussels Convention followed this incident, representing a true revolution in international maritime law. This convention recognized, for the first time, the right of a coastal state to intervene on the high seas, contrary to the general rules for combating pollution. This convention addressed and clarified the right to intervene on the high seas in cases of maritime accidents resulting in pollution or the possibility of pollution by petroleum oil.

This Convention established some important provisions[12] that established the right of States Parties to intervene on the high seas by taking whatever measures they deem necessary to prevent their coasts from being exposed or their interests threatened by oil pollution resulting from marine disasters affecting ships and tankers.[13]

In an effort to protect the interests of States Parties and establish rules for international cooperation to achieve environmental security on the high seas, the Brussels Convention expanded on the interests of coastal states, allowing them the right to intervene on the high seas to address marine disasters. The Convention enumerated the economic and tourism interests of the coastal state, its interest in preserving the health and welfare of its citizens, and the preservation of living marine resources.[14]

However, this Convention did not leave the practice of this intervention unchecked, but rather established controls that define the limits of its use.[15] The right to intervene here is not absolute and without any restrictions. Rather, the coastal state must adhere to several conditions before exercising this intervention, most of which revolve around imposing the principle of consultation, cooperation, and solidarity to achieve protection of the marine environment and support the pillars of environmental security on the high seas.[16] The Convention also stipulates that measures taken under the right of intervention shall not exceed what is reasonably necessary to achieve its objective, and shall not unduly infringe upon the rights and interests of other states or any natural or legal person. [17]

The Brussels Convention also does not permit the exercise of the right of intervention if the incident results from the operation of installations and equipment designated for the exploration and exploitation of the resources of the seabed and oceans or their subsoil. This matter is unquestionably subject to review, as the coastal state's right to intervene to avert the dangers of oil pollution threatening its coasts is justified by the principles of justice and equity and may also be justified by the state's right to self-defense. Therefore, excluding installations and equipment designated for the exploration and exploitation of the resources of the seabed and oceans and their subsoil from the scope of the exercise of the right of intervention is unjustifiable, especially in light of the increasing dangers of oil pollution from drilling and oil exploration equipment in high seas areas that are relatively close to shore. Therefore, the States Parties must strive to remedy this deficiency, so that the coastal State can exercise the right to intervene against the dangers of oil pollution resulting from the operation of such equipment and installations.[18]

However, in practice, it became clear that the provisions of the Brussels Convention were flawed, as they only covered one source of marine pollution: oil pollution from vessels. Given the remarkable scientific and technological progress, one of the most significant effects of which was the multiplicity of sources of marine pollution, it was natural for the international community to address this shortcoming and adopt the 1973 London Protocol to complement the shortcomings of the Brussels Convention and address its deficiencies, including all sources of marine pollution by substances other than oil.[19]

• The 1973 London Protocol on Intervention on the High Seas in Cases of Pollution by Substances Other Than Oil

The International Conference on Combating Pollution of the Marine Environment was held in London from October 8 to November 2, 1973. Among the documents that emerged from the conference was

the adoption of the Protocol on Intervention on the High Seas in Cases of Marine Pollution by Substances Other Than Oil.[20]

The 1973 London Protocol addressed the shortcomings of the 1969 Brussels Convention, which, as previously mentioned, was limited to… [21] This protocol was a positive extension of the Brussels Agreement, extending cooperation to achieve environmental security through this protocol to confront forms of pollution caused by materials other than oil. [22] This Protocol gives States Parties the right to take all necessary measures on the high seas, as the situation requires, to prevent and reduce marine pollution, to protect their interests from pollution or the threat of pollution by substances other than oil following a maritime incident or actions related to such an incident.[23] Thus, the 1969 Brussels Convention on Intervention in Cases of Oil Pollution and the 1973 London Protocol annexed to this Convention have together granted coastal States the right to intervene in cases of marine disasters that seriously threaten their interests, regardless of the type of pollutants causing the pollution, thus enshrining the principle of cooperation to achieve global environmental security.[24]

Third: The International Legal Framework for Environmental Sustainability in Antarctica

One of the most dangerous forms of pollution on the international scene is the conduct of nuclear tests and explosions in the Antarctic region of the Earth, an area not subject to the sovereignty of states, which creates a favorable climate for the penetration of ecosystems across this region.

These nuclear tests pose serious environmental risks that are not limited to the Antarctic region alone but extend to cause radioactive contamination of seawater, oceans, and air as a result of the radiation that accompanies these explosions, the radioactive materials left behind by these nuclear tests, and the fallout from these tests of radioactive dust. This led to the spread of nuclear contamination, extension of its effects, and severe damage to the atmosphere of many countries worldwide through air currents and wind movements. [25] Exploration of the region began in 1675 when the British explorer Anthony de la Roche reached South Georgia, the first discovered Arctic territory. Twenty-six explorations led to seven countries claiming territory there: the United Kingdom (1908), New Zealand (1923), France (confirming the 1840 claim in 1924), Australia (1933), Norway and Argentina (1939), and Chile (1940). After World War I, equipment allowed for a deeper understanding of Antarctica and the construction of permanent scientific research stations. For example, France built several stations in Terre Adélie, including the Dumontd'Urville station, which is still operating today. [27] With the spread of this environmental pollution phenomenon, the international community had to intervene as quickly as possible to fill this gap and adopt international rules prohibiting this phenomenon, which now threatens the entire human environment. [28] The result of this cooperation was the establishment of the Antarctic Treaty in 1959. On December 1, 1959, an international conference on Antarctica was held in Washington, D.C., authorizing the adoption of the treaty.

The treaty entered into force on June 23, 1961, prohibiting non-peaceful activities in Antarctica, including nuclear testing, and "froze" territorial claims. It also encouraged cooperation between parties and made the exchange of information mandatory. [29] This treaty is one of the most important fruits of international intervention to address the phenomenon of pollution across the Antarctic. It regulated the status of Antarctica and explicitly prohibited nuclear explosions within this region. It also prohibits the exclusion of radioactive waste from parts of Antarctica. The agreement also aimed to limit the claims of states to their rights on the continent. [30]

After 1961, two international texts complemented the Antarctic Treaty. The Antarctic Seal Protection Convention (CPPA), adopted in London on June 1, 1972, protects six seal species threatened with extinction by hunting, allowing for the remarkable revival of these species.

In 1989, France and Australia led the Air Transport Management Conference (ATCM) to open negotiations that led to the adoption of the Antarctic Treaty Protocol on Environmental Protection, known as the "Madrid Protocol," on October 4, 1991. It came into force on January 14, 1998. It complements the treaty by establishing Antarctica as a "natural reserve dedicated to peace and science," and prohibiting the exploitation of mineral resources—a commitment that has been strictly enforced ever since. It also prohibits environmental degradation and requires that all activities in the region be preceded by an environmental impact assessment to ensure environmental security in the region.
In 2013, the treaty brought together 50 member states that met periodically at the Antarctic Treaty Consultative Meeting, a diplomatic conference responsible for overseeing activities south of the 60th parallel. Of the 50 parties to the treaty, 29 are designated "Consultative Parties," a status justified by the importance of international cooperation on the ground and allowing them to participate in decision making.

Finally, the Protocol established a Committee for Environmental Protection (CEP), headed by experts from each of the member states, to provide the ATCM with scientific and environmental expertise. Contrary to the popular belief that the treaty and its protocol will only apply for 50 years, these two texts have no time limit for application.[32]

Fourth: The International Legal Framework for Environmental Sustainability in Outer Space

Outer space and the celestial bodies within it are common properties of all the inhabitants of Earth. Consequently, outer space is not subject to state sovereignty, making it vulnerable to pollution. This phenomenon often finds its way into outer space through the explosion of space objects in outer space, exposing the environment to the risk of nuclear pollution resulting from these explosions. This nuclear pollution poses a grave threat to the entire international community, as the effects of these radioactive materials persist for long periods, and their harmful effects travel long distances, negatively impacting many countries around the world. [33] The true consequences of radioactive pollution are not apparent until years after its occurrence. Its harmful effects include environmental damage and corruption. [34] These effects may persist and extend into the future, affecting future generations and leaving chronic negative impacts on the majority of the international community. [35] Hence, the international community must cooperate to confront the phenomenon of outer space pollution. This was achieved by addressing the severe legal deficiency in controlling this phenomenon through the enactment of legislation and the establishment of legal rules to combat this phenomenon, which has become one of the most significant threats to the environment. This intervention by the international community resulted in the establishment of the Outer Space Treaty in 1967, which established the legal framework governing outer space and provided the first appropriate legal solutions to fill the legislative gap in outer space. [36] This treaty, officially known as the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, constitutes the foundation of international space law. It came into force on October 10, 1967. As of January 1, 2008, 98 states had acceded to the treaty, while 27 had signed it but not yet ratified it. Among the most important principles of international space law represented by the Outer Space Treaty is the prohibition on states and parties to the treaty from placing nuclear weapons or any other weapons of mass destruction in Earth orbit, or installing them on the surface of the Moon or any celestial body, or a space station. It also explicitly prohibits their use for weapons testing of any kind, conducting military maneuvers, or establishing military bases, installations, and fortifications. However, the treaty does not prohibit the deployment of conventional weapons in orbits. [37] The treaty explicitly prohibits any government from claiming or possessing sovereignty over celestial resources, such as the Moon or other planets, considering them the common heritage of mankind. [38] It also requires avoiding the contamination of space and celestial bodies by damage caused by spacecrafts. The Treaty also emphasized the need to be guided by international cooperation to protect outer space from contamination, by including in Article 9 a requirement for international consultation on space experiments, if it is believed that an activity or experiment intended by a State in outer space would cause interference with activities that may be harmful to the peaceful exploration and

use of outer space.[39] However, since the early 1980s, the Conference on Disarmament has considered other proposals under the agenda item "Prevention of an Arms Race in Outer Space," including draft treaties aimed at preventing the placement of weapons in outer space and prohibiting the use of anti-satellite weapons. In 2006, the Governments of the Russian Federation and China submitted a draft treaty text to the Conference on Disarmament.

In January 2011, the General Assembly adopted resolution 65/68, requesting the Secretary-General to establish a group of governmental experts to conduct a study on transparency and confidence-building measures in outer space, particularly those relating to its protection from contaminants and the promotion of international cooperation to achieve environmental security. [40] The Group of Governmental Experts held three sessions: the first and third in New York from 23 to July 27, 2012, and from 8 to July 12, 2013, respectively, and the second session in Geneva from 1 to April 5, 2013. The Group submitted its report (A/68/189*) to the General Assembly at its sixty-eighth session. [41] After extensive and in-depth discussions, the experts agreed on a set of substantive measures to ensure transparency and confidence-building measures in outer space activities and recommended that States consider and implement them on a voluntary basis. These measures include, in particular, the exchange of various types of information related to States' space policies and activities, notifications aimed at reducing risks, consultation mechanisms for outer space protection, and expert visits to national space facilities. [42] The experts also recognized the growing role of international cooperation in establishing environmental security in outer space to build confidence and certainty among states. To facilitate the implementation of transparency and confidence-building measures and promote their further development, the group recommended coordination and consultation between the Office for Disarmament Affairs, the Office for Outer Space Affairs, and other relevant United Nations entities on the prevention of an arms race in outer space, with a view to ensuring cooperation to protect the region from pollution and, thus, establish the foundations of international environmental security.

Conclusion

An analysis of the international legal framework governing environmental sustainability in shared global areas leads to a central conclusion: current legal rules, despite their gradual development through multilateral treaties, are still governed by the sovereign will of the states. The principle of "sovereignty limited by environmental obligations" has not yet acquired a sufficient customary character to restrict unilateral actions in areas not subject to any national authority. The study revealed a structural flaw in the legal regulation of these areas, represented by a duality of reference between the requirements for protecting collective interests, as embodied in agreements such as the Antarctic Treaty or the High Seas Conventions, and states' adherence to implicit sovereign rights or strategic interests that may conflict with the requirements of environmental sustainability. The data indicate that current agreements, including the 1967 Outer Space Treaty, have not kept pace with emerging environmental challenges, neither in terms of the physical scope of regulation nor in terms of oversight and sanction tools. Furthermore, the near-total absence of the principle of "international liability for transboundary environmental damage" in these areas increases the difficulty of implementing the principles of prevention and accountability. Based on the above, any effective future vision for environmental governance in shared global areas must proceed as follows:

1. Rehabilitating the agreement framework through complementary protocols that establish the mandatory nature of environmental controls.
2. Expanding the institutional jurisdiction of UN bodies to allow for joint international oversight of activities with environmental impacts; 3.
3. Integrating the principle of the “common heritage of mankind” into the core of jus cogens rules of international environmental law;
4. Effective recognition of international environmental responsibility as a mechanism for holding states and non-state actors accountable

5. Establishing the role of customary international environmental law as a complementary and reinforcing element of written treaties. Therefore, preserving environmental sustainability in areas beyond sovereignty cannot be achieved solely through the existing rules. Rather, it requires rebuilding a unified international legal framework that transcends traditional sovereignty considerations and establishes a new contractual approach to advance environmental sustainability as a global priority.

Footnotes:

1- Sameh Abdel Qawi El Sayed Abdel Qawi, International Interventions to Protect the Environment and Defend Humanity, 1st ed., Center for Arab Studies, Egypt, Giza, 2015, p. 261.
2- Nabil Ahmed Helmy, International Legal Protection of the Environment from Pollution, Dar Al Nahda Al Arabiya, Cairo, 1991, p. 28.
3- Salah El Din Amer, Introduction to the Study of Public International Law, Dar Al Nahda Al Arabiya, Cairo, 2002, p. 882.
4- Abdel Hadi Mohamed El Ashry, Abu El Khair Ahmed Attia, Hussein Hanafi Omar, Principles of Public International Law, Vol. 1, Dar Nashr, 1999, p. 311.
5- Salah El Din Amer, op. cit., p. 804.
6- Sameh Abdel Qawi El Sayed Abdel Qawi, op. cit., p. 276.
7- Salah El Din Amer, Introduction to the Study of Public International Law, op. cit., p. 804.
8- Abu al-Khair Ahmed Attia Omar, printed doctoral dissertation, Faculty of Law, Ain Shams University, Cairo, 1995, p. 93.
9- Abdel Hadi Muhammad al-Ashri, Abu al-Khair Ahmed Attia, Hussein Hanafi Omar, op. cit., p. 315.
10- See Muhammad Mustafa Yunus, Protecting the Marine Environment from Pollution in Public International Law, Dar al-Nahda al-Arabiya, Cairo, 1996, p. 56.
11- Abdel Hadi al-Ashri, Pollution Caused by Ships and the Powers of Coastal States to Combat It, 1st ed., Dar Nashr, 1992, p. 198.
12- For details, see Salah Hashem, International Responsibility for Harm to the Safety of the Marine Environment, Said Raafat Printing Company, Cairo, 1991, p. 209.
13- Ibid., p. 224.
14- See: Tawfiq Atallah, The Role of International Cooperation in Protecting Environmental Rights, Journal of Law and Political Science, Issue 9, Abbas Laghrour University, Khenchela, January 2018, p. 333.
15- Abdelhadi Al-Ashri, Pollution from Ships and the Powers of the Coastal State in Combating It, op. cit., p. 201.
16- These conditions are as follows: A - The threatened state must consult with other states, particularly the flag state of the ship.
B- The coastal state must notify persons known to it related to the ship of the measures it intends to take. These persons include the ship's owner, investor, or insurance company, if known to it.
C- The threatened state must consult with experts, if necessary.
D- Before initiating intervention, the coastal state must use the best means to avoid endangering human lives at sea and provide the ship's crew with all necessary assistance to return them to their home countries. In an emergency, the state is not obligated to respect the first three conditions, but it must still notify the relevant parties of the measures it has taken in all cases.
See for details: Abu al-Khair Ahmed Attia Omar, op. cit., p. 156.
17. Salah Hashem, International Liability for Damage to the Marine Environment, op. cit., pp. 212-213.
18. Ibid., pp. 210-211.
19. Abdullah Nawar Shaat, Environmental Refuge between Climate Change and Wars, 1st ed., Al-Wafa Legal Library, Alexandria, Egypt, 2018, p. 165.
20. Abdel Hadi al-Ashry, op. cit., pp. 204-205.
21. Salah Hashem, International Liability for Damage to the Marine Environment, op. cit., p. 223.

22- Mustafa Younis, Protecting the Marine Environment from Pollution in Public International Law, op. cit., p. 56.
23- Ali Adnan Al-Feel, The Legislative Methodology in Environmental Protection, A Comparative Study, 1st ed., Dar Al-Thaqafa for Publishing and Distribution, Amman, Jordan, 1433 AH - 2012 AD, p. 205.
24- Salah Hashem, International Liability for Harmful Effects on the Safety of the Marine Environment, op. cit., p. 223.
25- Abdullah Nawar Shaat, op. cit., p. 304.
26- In the 18th century, navigators reached more southern latitudes: 52°S in 1699 (Edmond Halley), 61°S in 1720 (George Shelvock), and 71°S in 1774 (James Cook).
France actively participated in the exploration of subantarctic regions, discovering the Bouvet Islands in 1739.
In 1773-1774, James Cook of Britain made the first circumnavigation of the South Pole. In 1820, Fabian von Bellingshausen was the first Russian to sight the continent, while American John Davis was the first to land in 1821. For more on explorations of the continent, see: Sultan Al-Rifai, Environmental Pollution, Osama Publishing and Distribution House, 1st ed., 2009, p. 210.
27- Muhammad Khalid Jamal Rustum, The Legal Regulation of the Environment in the World, Halabi Legal Publications, Beirut, Lebanon, 1st ed., 2006, p. 154.
28- Abu Al-Khair Ahmad Attia Omar, The International Obligation to Protect and Preserve the Marine Environment from Pollution, op. cit., p. 39.
29- Ali Adnan Al-Feel, The Legislative Methodology in Environmental Protection, op. cit., p. 340.
30- It includes six appendices: Environmental Impact Assessment, Protection of Antarctic Fauna and Flora, Waste Management, Marine Pollution Reduction, Polar Protection, and Liabilities Resulting from Environmental Disasters. See: Sultan Al-Rifai, Environmental Pollution, op. cit., p. 214.
31- Abu Al-Khair Ahmed Attia Omar, PhD Thesis, op. cit., p. 185.
32- Abdul Hadi Muhammad Al-Ashri, Abu Al-Khair Ahmed Attia, Hussein Hanafi Omar, Principles of Public International Law, op. cit., p. 338.
33- Nabil Ahmed Helmy, International Legal Protection of the Environment from Pollution, op. cit., p. 18
34- Hilal Sayed, International Protection of the Environment During Armed Conflicts - Relevant International Conventions Commented on by Jurists' Opinions and International Court Rulings, printed doctoral dissertation, Ain Shams University, Faculty of Law, Department of Public International Law, 1st ed., Cairo, Egypt, 1433 AH/2012 AD, p. 402.
35- Nabil Ahmed Helmy, op. cit., p. 22.
36- Alawi Amjad Ali: The Legal Regime of Outer Space, Celestial Bodies, 2nd ed., Dar Al-Nahda Al-Arabiya, 2003, pp. 194 ff.
37- Abdel Hadi Muhammad Al-Ashry, Abu Al-Khair Ahmed Attia, Hussein Hanafi Omar, Principles of Public International Law, op. cit., p. 339.
38- Article 2 of the Treaty states that "outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by use, occupation, or control by any other means." See: Randall Vosburgh et al., The Non-Proliferation of Nuclear, Chemical, and Biological Weapons, translated by Hadara (Sayed Ramadan), 1st ed., Egyptian Society for the Dissemination of Knowledge and World Culture, Cairo, 1998, p. 274. 39- Ali Adnan Al-Feel, The Legislative Methodology for Environmental Protection, op. cit., p. 264.
40- Hilal Sayed, International Protection of the Environment During Armed Conflicts - Relevant International Conventions Commented on by Jurists and International Court Rulings, printed PhD dissertation, Ain Shams University, Faculty of Law, Department of Public International Law, 1st ed., Cairo, Egypt, 1433 AH/2012 AD, p. 402.
41- For details, see the website https://www.un.org/disarmament/ar. Last accessed on March 8, 2021, at 06:33.
42- Hilal Sayed, International Protection of the Environment During Armed Conflicts, op. cit., p. 506.

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