# the criminal liability for Damage Caused by Space Object under the International Treaties and National Laws

## In light of UAE Federal Law No. 12 of (2019) on the Regulation of the Space Sector.

**Khalifa Abdulrahim Mohammed Alamoudi**

Air and Space Law, College of Law, University of Sharjah, UAE

**Dr. Mohammad Owais Farooqui**

*Assistant Professor of Aerospace Law, College of Law, University of Sharjah, UAE

# المسؤولية الجنائية عن الأضرار التي يسببها الجسم الفضائي بموجب المعاهدات الدولية والقوانين الوطنية

## في ضوء القانون الاتحادي رقم (١٢) لسنة (٢٠١٩) في شأن تنظيم قطاع الفضاء.


**خليفة عبدالرحيم محمد العمودي**

ماجستير في القانون الجوي والفضائي، كلية القانون، جامعة الشارقة.

الإمارات العربية المتحدة – الشارقة

**إشراف:**

**د. محمد عويس فاروق**

أستاذ مشارك في قانون الفضاء، كلية القانون، جامعة الشارقة.

## Abstract

In this study, we examine the liability for damage caused by space objects as one of the most significant forms of responsibility in the field of outer space activities and because of the scientific importance that is not hidden from it at the local and international levels, where the research was done to clarify the standard of differentiation between international treaties related to liability for damage caused by space objects and between Local laws requesting their clarification in order to investigate the goal behind establishing this responsibility, by searching for this responsibility in international treaties that represent the basis of international law and various other laws that have adopted the enactment of space legislation to confront the challenges it faces in the future and the present as well, as the UAE witnessed the launch of the first object Space (Probe of Hope) to Mars has achieved tremendous success as it is the fifth country in the world and the first Arab country to reach this success.



**KeyWords:** Liability, Outer space, Space object, International treaties.

**الملخص**

هذا البحث يناول المسؤولية عن الاضرار الناجمة عن الاجسام الفضائية بصفتها أحد أهم صور المسؤولية في مجال أنشطة الفضاء الخارجي، ولما لا يخفى عليه من أهمية علمية على المستوى المحلي والدولي. حيث تم كتابة هذا البحث لبيان معيار التفرقة بين المعاهدات الدولية المتعلقة بالمسؤولية عن الاضرار التي تسببها الاجسام الفضائية وبين القوانين المحلية حيث تطلب توضيحها من أجل تحقيق الهدف من وراء سن هذه المسؤولية، يمثل البحث عن هذه المسؤولية في المعاهدات الدولية أساس القانون الدولي والقوانين المختلفة الاخرى التي تبنت سن تشريعات فضائية لمواجه التحديات التي تواجهها في الحاضر والمستقبل أيضا، وقد شهدت دولة الامارات إطلاق أول جسم فضائي (مسبار الامل) الى المريخ وقد حاز نجاحاً هائلاً كونها خامس دولة في العالم وأول دولة عربية تصل الى هذا النجاح.

**الكلمات الدالة:** المسؤولية، الفضاء الخارجي، الجسم الفضائي، المعاهدات الدولية.

## GOALS AND OBJECTIVES

The objective of this research is to handle some of the most significant aspect in space law that missed though out the years and that is the criminal liability aspect and the jurisdiction establishment, and that's happens thought practicing some states its own activities.

This can be summarized in the following points

1. To identify the local space law and the principles that related to it.
2. Acknowledge the activities and acts that considered crimes that may occurs and the sanction applies to it.
3. Analysis and interpret the treaties and conventions specially the local space law.
4- The contribution of giving new study that may assist the united Arab Emiratis entities of applying the space law.

## METHOD AND LITERATURE

research will rely on a descriptive analytical method based on collecting information and facts in an analytical manner for these facts and information,

and extracting the legal principle and provisions related to the topic of the research, which will be applied in the research; by learning about all treaties, conventions and laws that is related to the subject of the research.
Moreover, the research will rely also on a comparative method study that deals with other national space legislation such as United states space law and its opinion to this case or international space law in comparison with UAE federal law to reach the final result and the correct answers that the research is argue ..about

**Search Plan**

**We address the search plan through the following points.**

**1-Introduction**

**2-A brief history of the establishment of liability**

**3-The Treaty on Principles Governing the Activities of States in the Exploration and Uses of Outer Space, Including the Moon and Other Celestial Bodies (The Outer Space Treaty), 1967 .**

**4-The Convention on International Liability for Damage Caused by Space Objects (The Liability Convention), 1972.**

**5-UAE Federal Law No. 12 of (2019) on the Regulation of the Space Sector.**

**6-Liability for damage caused by space objects in the United Kingdom's space law.**

**7-The Liability Regime in Other States' National Space Laws.**

## 1-Introduction

"The world is witnessing the beginning of a new space race" (Reinert, 2020), just as civil aviation is witnessing the civil use of drones (Anna & Mateusz, 2020), which have frequently been used by states during this recent period. It was not

until 1957 that Sputnik I succeeded in becoming the first object launched from this planet to reach space. Today, the launch of objects into space almost daily, although not quite here, is expected soon. Therefore, the responsibility and liability for launch activities deserve our attention. (Bin C. , 1995)

In order to gain a clear insight of how the issue of liability for space activities is relevant, it is "necessary to develop some further theoretical outlines of the principle, starting from the definitions. In this way, a frame of reference will emerge for the discussion of practical questions and problems". (Dunk & G., 1994)

Before we talk about the title of the investigation, we need to define a certain thing, and that is the term "damage", The Outer Space Treaty (OST) does not define this concept, and neither is the term "space object", however, the Liability Convention specifies this in its provision in Article I that says: "For this Convention:

(a) The term 'damage' means loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations;

(b) The term 'launching' includes attempted launching;

(c) The term 'launching State' means:

1. (i) A State which launches or procures the launching of a space object;
2. (ii) A State from whose territory or facility a space object is launched;

(d) The term 'space object' includes parts of a space object as well as its launch vehicle and parts thereof". ( International Liability, 1971)

This research seeks and intends to give a brief examination of several cases that have had a significant effect at the local and international level. By cases, we

mean those that fall in accordance with international law as (state liability for damage caused by space objects), such as the five international space treaties, and some national or local laws that may be related to them, including the UAE Federal Space Law 2019, which are clarified so as to understand the UAE legislature's position regarding damage that been caused by space objects in outer space.

## 1. A brief history of the establishment of liability

International community's only political and representative body, the United Nation, negotiated the Outer Space Treaty in the 1960s. Although not explicitly stated in its Charter, the United Nations was generally considered to have sufficient jurisdiction over legal issues arising from all activities in space. Since the begining of the space age, the General Assembly of the United Nations has supposed to be responsible for all matters pertaining to outer space and has assumed this primary responsibility through its Space Commission.

In 1958 the Committee on the Peaceful Uses of Outer Space (COPUOS) was formed as an ad hoc committee of 18 member states. After it had completed its first year of existence, it was reconstituted as a permanent body, and "its membership has also been periodically increased since then to the present number of sixty-seven". (Ram Jakhu, 2005)

After the establishment of (COPUOS) the Committee on the Peaceful Uses of Outer Space and the publication of the Outer Space Treaty. COPUOS dealt with the responsibilities outlined within the treaty's provisions, but are concepts such as liability and responsibility the same, or are they different? Some jurists have linked them together as the same concept and give them the same definition,

while other jurists distinguish between them when defining them and show that there are different elements to clarify the differences between these two concepts.

Whenever a legal norm is violated, causing harm to others, there is a legal liability for the person who has caused the harm to compensate the victim for the harm so that the victim can restore the situation that existed before the harm occurred, as if violation had not occured at all. (Chorzo'w Factory Case, 1928). We can say that this is the liability of the person, not the responsibility of the person. The term "responsibility" comes from Latin and means "to answer" or "accountability", but in the present context, it means "authorship of an act or omission". (Bin, 1995, p. 300).

Can we define liability as the legal obligation “to compensate another ... for injury following an event that causes damage”, (Cheng, 1995) or is this “a form of liability of legal persons towards other legal persons for certain types of activities and their consequences”? (Frans G, 1994)

The legal context of the definition is important to understand exactly what the intention and the puprose of the provision of the text is. The Outer Space Treaty(OST) did not define it, however it underlined the responsibility of the state in the provision, and this is explained in this research. Even though the Liability Convention did not define it either, “it has a practical meaning in this in relation to damages, injuries, or death occuring as a result and outcome of space activities”. (Joseph, 1995)

As an example, the Liability Convention refers to a kind of liability for damage caused not exclusively on the surface of the Earth or on an aircraft in flight but to a space object of another state that stated in articles II and III. The Convention explicitly states that it covers any kind of damage, including that caused by

nuclear energy, but it was implicitly quotes from the explicit text. (I. Herczeg, 1976).

## 2. The Treaty on Principles Governing the Activities of States in the Exploration and Uses of Outer Space, Including the Moon and Other Celestial Bodies (The Outer Space Treaty), 1967

"The OST 1967 did great work on determining the liability of states in the event of damage taking place in outer space. The treaty is considered as the foundational treaty from which all others arose because many of the general principles outlined in it are the basis for subsequent treaties that came after it". (Benko, Graaff, & Reijnen, 1990) It all began with Article VI of the Outer Space Treaty (OST), when states were given an international responsibility for any national activities that take place in space, wheather these national activities are executed by governmental agencies or by non-governmental entities, to ensure that national activities are done in accordance with the Outer Space Treaty. Besides that, "the national activities that are done by non-governtmental entities require authorization and continual supervision by the appropriate state". (Outer Space Treaty, 1967) that is to say, By Article VI of the OST, space activities were allowed to be conducted by private companies, and therefore space activities can be conducted by both non-governmental organizations and governmental agencies, but the activities of non-governmental entities are not as uncheched as those of governmental agencies, as they are limited by several restrictions.

The first restriction is that they are required to have authorization from the states themselves to carry out any activity and to have continual supervision by that state. Therefore, there is "an obligation imposed upon states, which is to authorize and supervise the activities of their nationals in outer space". (Paul, 2011)

The second restriction also relates to the non-governmental entities: they must undertake to execute their national activities in with compliance with the Outer Space Treaty to prevent the private sector from breaching any space treaty or international law.

“The space activities of non-governmental (private) entities are considered to be ‘national activities’ of the concerned state(s)”( International Institute of Space Law, 2004). Therefore, the existence of these restrictions faced by the private sector will also have an influence on the activities of the governmental agencies, who have the international responsibility for any “national activities that take place in space, so the scope of the provision is broad. It also includes states that are not launching states”. (Chatzipanagiotiotis, 2015)

United States and Soviet Union reached a compromise, Article VI turned out to be a success. The U.S. wanted private entities participated in the negotiations of the space treaty. Yet the Soviet Union wanted to limit space activities to states only, and without involving the private sector. In the end, Article VI allows and gives opportunities to the “private entities to operate in space, yet the treaty ensures national governments will play the critical role in governing space activities”. (Reinert, Why Spacefaring Companies Should Be Internationally Liable for Their Space Objects, 2020)

Outer Space Treaty Article VII covers any event where a state, whether it “launches or procures the launching of any space object into the outer space or if a space object is launched from the state’s territory, will be internationally liable for any damages that are caused to another state, even if it relates to a natural or legal person on Earth or in air space or in outer space”. (Outer Space Treaty, 1967)

In order that the act be attributed to the state, the state has to ratify the Outer Space Treaty(OST), then it has to launch or procures the launching of a space object into outer space or be the state from whose territory or facility an object is launched and as a result of international law, this kind of space object or even parts of it may be held liable by another state for damages caused by the object, regardless of the person, whether this is a natural person or legal persons, even though the article did not require that there was or was not a breach of international obligation.

The occurrence of the damage by itself is sufficient to establish the liability of that state and the requirement to compensate the other state for the damage. There is no distinction made for the place of the occurrence, which could be applied to the Moon, airspace, outer space, or other celestial bodies.

The article also shows that if "the damage were caused by an object launched by a commercial company at the behest of a government, that state would be liable for the damage that is incurred". (Caley, 2014)

In addition to the above, As long as a state has only ratified the Outer Space Treaty and not the Liability Convention, that state is subject to the Outer Space Treaty. Due to this, the Outer Space Treaty will rely on the latest treaties ratified by the states in order to apply their liability rules without creating any conflict of jurisdiction.

### 3. The Convention on International Liability for Damage Caused by Space Objects (The Liability Convention), 1972

After the promulgation of the Outer Space Treaty, which had a significant impact on determining the scope of liability, a new treaty called the Liability Convention was created in 1972 that aimed at developing the liability regime and preserving

the rights of states to receive compensation for the damage they suffered when carrying out their own activities in outer space. The Liability Convention was deliberated by the United Nation's Legal Subcommittee from 1963 to 1972, and after the General Assembly has reached as agreement in 1971, the Convention entered into force in September 1972.

The Liability Convention promotes a peaceful coexistence and cooperation in outer space according to its provisions. In settling liability issues under international law, the aim is to prevent misunderstandings and disputes that arise from damage caused by one state to another. "In the field of public law, it is the first international convention that focuses specifically on liability".( Zhukov Gennady, *et al*, 2014)

Usually, a claim for liability requires showing fault, damage and causation, which establishes liability as fault liability. Unless fault is involved, there can only be damage and causation. This is defined as strict liability. (Dennerley, 2018) Therefore, in determining liability under the Liability Convention, In addition, it should be noted that the liability is distinguished here between the two places where the damage can occur, On that basis, we can distinguish between different types of liability in determining the standard of liability.

The first type of liability is absolute liability (or the strict liability), set out under Article II of the Liability Convention, which gives the "launching state the absolute liability to compensate any damage caused by a space object, wheather on the surface of the Earth or to an aircraft during flight". (Liability Convention, 1972), Any activity related to the launching of a space object in one way or another involves a risk that may result in damage being caused to another state, even though it may take all precautions and safety measures to prevent this. When this damage occurs, the state must be compensated regardless of fault; if it happened by accident, such damage would impose liability on the state for the

action. This is called the absolute or strict liability. This absolute liability would be invoked, for example, debris from a space object may damage property if it falls to Earth outside of a launching state's territory.

However, there is an exception whereby a state could be exonerated or relieved from this heavy liability under Article VI Unless an act or omission was conducted with the intention of causing damage or the outcome of gross negligence caused the damage, wheather wholly or partially. “However, there will be no exoneration from absolute liability if the activities were done in conformity with international law, the Charter of the United Nations and the Outer Space Treaty”.(Liability Convention, 1972)

According to Stanley Mazaroff (1968) “If the claimant caused the damage intentionally or grossly or recklessly, the launching state is exonerated from liability”. However, if damages intended to be caused by an act or omission, all states will be held liable for the damage resulting therefrom.

In order to receive the exemption, Space activities of a state must conform to international law and should not violate the U.N. Charter or the Outer Space Treaty.

A second liability type is fault liability which imposed by Liability Convention, Article III, under which, if damage to the launching state is caused elsewhere than on Earth, “this state will be liable only if the damage is caused by its fault or by persons for whom it is responsible”. (Liability Convention, 1972) According to the article, it differentiates between damage locations, and therefore if the damage is caused to a space object in another place than on the surface of the Earth, the state causing the damage is only liable for its fault. Its liability does not go beyond that. As an example, in the event of a collision between two space objects, fault liability would apply.

However, if there was more than one launching state, such as if there are "multiple launching states, they will be jointly and severally liable to the state that suffered the damage and an internal division of compensation will be made between them under Article V of the Liability Convention". (Liability Convention, 1972) "This is unlike the law of the sea, which has a special rule". (ROGERS RACHEL, 2019)

## 4. UAE Federal Law No. 12 of (2019) on the Regulation of the Space Sector

The UAE federal space law also regulates international space treaties in its provision on the liability of states, but the federal law distinguishes between absolute liability, fault liability, contractual liability, or even if the damage occurs to the state itself or to its space object or to a third party. It is not like the international space treaties that cover the liability of the state in only two articles in general in the Outer Space Treaty or in three articles in the Liability Convention, but instead comes with a comprehensive framework on the liability provisions and provides for a different types of events.

The federal space law of the United Arab Emirates covers liability provisions in Articles 20 to 24, but we will only explain the articles on liability in the space law as that is the subject of the present research. So, in this regard, we will start with the liability provision contained in the first article.

- Article 20 of Federal Law no. 12 (2019) on the Regulation of the Space Sector

Article 20 deals with the liability between states that join forces; in other words, it talks about states that enter into and execute a contract with another state for mutual interest. Some states form this contract for the development of mutual

relations with each other, while other states enters into such contracts for the prosperity and revitalization of their economic sector, and others do this to use the technology and perform scientific research. An example of this is the United Arab Emirates, which has a contract with the United States to learn from their experience to develop the space sector.

Even though this article applies to the contracting states, it still does not impose liability according paragraph 4, which allows the state to be considered unresponsible, for example, if the operator invited the state or the launching state to the area from which the launch or re-entry could be conducted, for any damage that occurs from the operator's activity to other parties to the contract or persons who participate in such activities or even during their presence. A similar provision in the Liability Convention exempts nationals of a launching state or foreign nationals attending in the launching process from any liability arising from damage caused by a space object launched by that state while they are in the area of operation, immediate vicinity or during the recovery process as a result of an invitation from the launching state.

This shows that contracting party resorts to the provisions of the law when the contract does not specify the liability or its scope in the application of their space activities, either based on the conditions and obligations contained in the contracts or on other terms agreed between them..

- Article 21 of the Federal Law no. 12 (2019) on the Regulation of the Space Sector

A very important and significant article regarding the liability incurred in the event of damage to third parties is Article 21, which makes the operator liabile in principle for damage caused to a third party whether on the surface of the

Earth or on an aircraft in flight, regardless of being inside or outside state's territory. However, if the operator has a valid authorization, he is only liable for damages caused within the state, if a third party is injured inside the state. As for the operator, if he does not have a valid authorization, or if he had it and breached this authorization, "he will have absolute liability for the damage that is caused to the third party". ( Federal law no. (12) of 2019)

This article, like the previous article of the Liability Convention, deals with the liability issue; however, this type of liability is called absolute (or strict) liability because some activities are so dangerous that they jeopardize and pose a constant threat to people and property. Therefore, the law is required to continue for the benefit of society, but only in accordance with the legal rules and regulations that establish safety measures and provide penalties for non-compliance through "strict liability".

"Space activity and the use of spacecraft entail the possibility of causing damages to third parties", (Piotr, 2006) and UAE federal law gives the operator absolute liability for any damage he causes somewhere other than the surface of the Earth or on the aircraft during the flight, whether inside or outside the national territory, to a third party, caused by the space object owned or operated by the operator or jointly operated by him, in order for states to be able to launch space activities with all precautions and all safety measures so as not to endanger the lives of people or their property during the performance of their duties.

- Article 22 of the Federal Law no. 12 (2019) on the Regulation of the Space Sector

After examining Article 21, we come to the conclusion that it undoubtedly imposes a heavy load on the space nations, (Ram, 2005) which is absolute

liability on the part of the operators for damage in several cases. Article 22 relates to liability for damages to another space object.

Whenever an operator damages another object in space or a person or property abroad it anywhere other than earth, the operator is liable whenever fault was proven and it was fully or partially down to the operator. However, if the operator has a valid authorization to practice space activities, he will be liable to compensate a third party for damage that has been caused inside the state. As for the operator, if he does not have the authorization that is required from him, he will be liable to compensate third parties without any limitation of the amount. ( Federal law no. (12) of 2019)

The operator has a different set of facts in this article. When damages occur to any space object or to persons or property aboard any space object away from the Earth's surface, fault liability and not strict liability applies, and therefore the claimant must prove fault, damage and causation upon the operator in order for him to be held responsible for his action.

The claimant cannot prove only damage and causation to hold the operator liable because the latter has fault liability, not strict liability, otherwise it would be open to all claimants to hold the operator responsible for any activity that is done in outer space.

According to UAE federal law, which refers to the liability of the space operator and its species, the operator, in cases other than those previously mentioned in the law, will be considered liable before the judiciary for any activity that is not mentioned in the law under the Article 23, which considers the operator responsible for any damages that are caused by his own space activities in the event that the UAE federal law provisions do not cover that type of action.

Ultimately, we can say that the liability for activities conducted in space by operators that cause damage to other states must be fully compensated in order to exercise the rule of law. Furthermore, the liability of the operator must be determined in order to know the extent of the damage that has been caused and the compensation that must be paid to the injured party.

However, this responsibility in determining the extent of damage is not absolute. Rather, it is codified according to the UAE Space Law, which estimates the compensation limits for liability in case of damage proven, which includes an article that talks about the determination of the liability limit under Article 24, which allows the determination of the limitation of the compensation amount as related to the size of the launching vehicle and any other space object therefrom, "the recording of the launching operator or the process of re-entry, the planned trajectory of the launched or re-entered space object, and any other elements that determine the risk occurrence probability of accidents". ( Federal law no. (12) of 2019)

## 5. Liability for damage caused by space objects in the United Kingdom's space law

The United Kingdom recently enacted the the Space Industry Act 2018 in conjunction with 1986 Outer Space Act. Currently, the Space Industry Act is a law. Yet, its articles have not come into force.

On 15 March, royal assent was given to the Space Industry Act, and this is seen as an important milestone in creating an environment for safe, liable, and commercial operations from UK spaceports.

It builds on existing space and aviation regulations and provides a comprehensive regime for suborbital and space activities in one place, but most importantly, the "Act's provisions also ensure that space activities taking place in the UK are conducted in accordance with the UN's space treaties".

The law regulates the determination of liability through several articles; in Article 34, it regulates the strict liability of the operator conducting space activities for "injury or damage to persons or property on the land or water in the United Kingdom or the territorial sea adjacent to the United Kingdom, or to aircraft during flight". The person who suffers damage can claim against the operator without having to prove fault, but only damage and causation.

The other type of liability is the "liability of the operator conducting space activities to indemnify the United Kingdom Government or any person or entity against any claim in respect of damage or loss arising out of or in connection with those space activities".

These types of liability involving operators (and all common law claims) should be covered by liability insurance. Following the findings of a Government-commissioned report that included an analysis of liability regimes in other jurisdictions, and concerns expressed by stakeholders and industry that unlimited operator liability would not be commercially or competitively viable, based on these considerations, the limitation of liability for these categories is justified. According to Articles 34 and 36, "space activities" only include launch activities and satellite services, therefore strict liability does not apply to spaceport operators or range controllers.

Claims could be filed against those performing "related activities," including the operator of a spaceport or the provider of range control services, but such claims

will be brought on a strict liability basis (or even contractually, subject to the mutual indemnity rules noted below). “There is no corresponding limitation of liability for space centers or the provision of distance control services, as this concept works in tandem with the absolute liability regime”. (Addleshaw, 2020)

## 6. The Liability Regime in Other States' National Space Laws

State liability is an important aspect of studying and analyzing space law, and there is a rule that must be considered and reformulated, which is as follows: Space activities undertaken by states are subject to international responsibility; therefore, each state must regulate its national legislation to have it enforced in all appropriate ways.

Therefore, the union of liability imposed by both conventional international law and customary international law is an encouraging motive for each state to enact its national legislation to ensure that space activities are conducted with precautionary measures and in a safe manner.

Chinese Law: “China is studying a draft law to implement the commitments it made under the Convention on International Liability for Damage Caused by Space Objects 1972”. (Zhao, 2010)

Japanese Law: Japan has acknowledged that it has an “absolute liability to pay reparation to foreign countries and their citizens for damages caused by the Japanese space objects”. (Aoki, 2010) This shows that the launch (re-entry) provider is exclusively liable for “damage caused by the launch (re-entry) activity to third parties on the Earth's surface or to aircraft in flight, so other parties (launch manufacturers and users) are exempt from TPL”. (Japanese Space Law, 2008)

Russian Law: " The liability provisions of the Russian Law on Space Activities are more or less similar to those imposed by Articles II and III of the Liability Convention".( Sergey Malkov & Catherine Doldirina, *et al*, 2010)

Brazilian Law: Brazil recognizes that "the liability for damage caused by the launch into outer space must be determined in accordance with the space treaties and conventions signed by Brazil," ( Jose Monserrat Filho, 2010) which means that Brazil assumes responsibility for all launches of space objects from its territory, including those initiated by the private sector. Moreover, the responsibility in Brazilian legislation extends to intergovernmental organizations as well as to the environment.

Argentine Law: it has established a National Commission on Space Activities, whose Resolution 330 provides that "the Argentine state is fully responsible for the damage caused by ... space objects launched from its territory or obtained by public or private organizations under its jurisdiction". However, there are no specific laws or regulations a state can seek to recover from a commercial entity that caused the damage the amount it must pay under the liability contract. Under general Civil Code Liability, such acts are covered, which "prescribes general rules and principles of liability". (Hermida, 2010)

Many states have not addressed or enacted space legislation that relates to state liability for damage that has occurred or is imminent, and this exposes them to danger in the absence of such national laws that relate to space. An example is India, which does not exempt itself from liability or its commitment to pay for damages caused by its space objects to other states or to the property of another country or its entity.

## 7. Conclusion

In conclusion, as a result of ratifying the Outer Space Treaty or the Liability Convention, states expressly agree to be liable for damage caused by space objects launched from their territory or objects they have caused to be launched. The state is liable under the Liability Convention if it has ratified it; otherwise, the liability rules of the Outer Space Treaty apply.

The main conclusions we have reached in this investigation include the following:

- The liability rules in states national legislation have a multifaceted character, and it varies between states as to how these rules are applied.

- The Outer Space Treaty(OST) of 1967 treated the liability rules in its provision as a different concept called “international responsibilities,” and this covered all aspects of them, whether the implementing authority was a governmental body or a non-governmental agency.

- The 1972 Liability Convention took on a special character in defining liability once it was ratified to activate different types of liability, whether this is absolute liability or fault liability.

- The UAE legislature has done a great job by issuing the Federal Space Law 2019, which makes the liability rules more comprehensive and covers all aspects of them, whether this regards operator liability, contractual liability, or even third-party liability.

From the above, it can be seen that international space treaties have clarified many concepts of responsibility and liability in relation to activities committed in

space and indicate the cases in which the injured person can receive compensation as a result of the damage suffered, but they have not enabled other states to enact national legislation that will help to implement these treaties as fully as possible. In addition, it will protect their treasury and citizens and property from losses, which will be reflected in the development of other countries in the field of space, which is why some states have enacted national space laws, such as the United Arab Emirates did when it enacted the Federal Space Law in 2019 to regulate the space sector, and it is now tasked with establishing a mechanism to implement this law. Therefore, we hope that other states will do the same by enacting national space laws in the near future.

As Professor Stephen Freeland notes, "the imposition of joint and several liability at Outer Space Treaty and Liability Convention is one of the reasons why many states have passed national space laws that have helped them reduce their liability by making private launch companies financially responsible".(Steven Freeland, 2005)

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