

Towards a New International Space Liability Regime Alongside the Liability Convention 1971

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Private space activities will affect the future of the space developments in numerous ways. Liability of private sector is naturally different from responsibility of States and public section in international law. The former is discussed in private international law; however, the latter is discussed in public international law. Although the Liability Convention provides provisions that includes liability regime for States and private section, there are ambiguities about liability of individuals. There are, for instance, questions as to whether it covers a space station, especially if it is permanently installed on the Moon or another celestial body. Whether it covers space tourist's death or bodily injury in space accidents? A likewise pending question - of particular interest to private sections - concerns payloads of space objects as space assets. Unlike other parts of a space object, the payload is exchangeable and variable. It cannot be considered to be an essential element since a space object is still a functioning space object without the payload. Keeping this in mind and drawing an analogy to, for example, the cargo of a truck, it seems far-fetched if not impossible to construe payloads as component parts. These inaccuracy and incompleteness in the Liability Convention has influenced private space activities in recent years. The assumption is that the Liability Convention being unable to include private international provisions relating to liability of individuals and private section. The question is if it is not the time for States to amend or complete the Liability Convention. This article tries to analyze the interaction of the public international space law and private international space law focusing on liability in order to propose a need New International Space Liability Regime alongside the Liability Convention 1971.

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I Introduction

Between 1967 and 1979, five international agreements covering legal aspects of top priorities were concluded: the Outer Space Treaty, the Rescue Agreement, the Liability Convention, the Registration Convention and the Moon Treaty.¹ These international laws and regulations governing space activity were written to make it easier for governments to function in space. The original texts of space law were developed during the Cold war and they still bear the mark of their historical context. They were developed by States to govern their space activities and the activities downstream of the activities of States, mostly due to the fact at that time, space applications were not commercialized and nongovernmental entities' activities were seen as sort of a science fiction prospect. The texts were elaborated essentially to maintain a balance between States carrying out space activities and avoiding to be used as instruments of conquest, war and domain. The space treaties therefore have to be read with this context in mind which permits the understanding of their limitations.²

Now we need to make international laws and regulations easier for the private sector to undertake space development. The role of the private practitioner involved in liability relating to commercial space transportation is to advise clients on risk management. Depending on the client a practitioner represents, various recommendations must be made to properly address risks arising from activities undertaken. Launch services providers are the potential clients involved in commercial space transportation. This could be a small start-up company involved exclusively in the provision of space transportation, 1or an established aerospace giant. Other participants involved include the various contractors and sub-contractors of these launch service providers. Once travel to and from orbit is cheap enough, as on the earth, most activities in space will be carried out by individuals, private companies and organizations. At that time space activities will involve almost every industry.

In order for commercial space activities to grow, there must be an attractive legal environment. The existing space law consists mostly of some inter-governmental treaties negotiated during the cold war, which are quite inappropriate for business. As an example, under existing law, governments are liable for damage caused by any launches from their territory. This is quite different from other transport industries, such as air transport which are governed mainly by commercial law, and liability for any damage caused by an accident is governed by private international air law.³

An attractive legal environment is needed to enable operating companies to plan passenger services and place orders for the vehicles which they require, and for manufacturers to finalize vehicle design details and raise the investment

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- 1 Maniatis D, "The Law Governing Liability for Damage Caused by Space Objects: From State Responsibility to Private Liability", XXII Ann. Air & Sp. L. 1997, p. 373.
 - 2 Cheng B, *Studies in International Space Law*, Oxford: Clarendon Press, 1997, p. 330.
 - 3 Armel Kerrest, *Launching Spacecraft from the Sea and the Outer Treaty: The Sea Launch Project*, Proc. Coll. L. Outer Space 40, 1997, p. 264.

which they need in order to put the vehicles into production. Recently it has begun to be recognized that this situation needs to be changed.

There are more examples of the need to revise space law. According to the 1967 UN Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, commonly known as “The Rescue Agreement”, astronauts are to be treated as “envoys of mankind”. This was logical and valuable as a way of aiding cooperation between the USA and USSR during the cold war - but it is no good for tourists, or for business. Another example is the need for private property rights in space. Without the ability to own and protect the facilities they build in space, companies cannot make large investments in such economically desirable projects as power-generating satellites, Moon-mines and others.⁴

This paper discusses liability in current situation, the challenges facing the private international law from the perspective of liability issues and finally provides solution and proposition. This presentation will hopefully provide a new international liability regime, involving government space operations and the commercial space industry.

II Liability in Current Situation

Following Arts.VI and VII of Outer Space Treaty, the responsibility-principle, the Liability Convention was created. The 1972 Convention on International Liability for Damage Caused by Space Objects, commonly known as ‘the Liability Convention,’ sets forth the rules for personal injury and property damage and for resolution of those issues at the international level.

1. Art. II of the Liability Convention provides that any launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight. The Liability Convention provides that a State which launches or procures the launching of a space object, or from whose territory a space object is launched, shall be absolutely liable for damage caused by its space object on the surface of the earth or to aircraft in flight.⁵

With respect to damage caused elsewhere than on the surface of the earth, however, States are not absolutely liable but rather are liable on the basis of fault. In case of damage caused elsewhere than on the surface of the earth, the launching State shall be liable only, if the damage is due to its fault or the fault of persons for whom it is responsible (Art.III Liability Convention), and this counts as well for non-governmental entities (Art.VI Outer Space Treaty). The international liability accepted by the State Party under Article VII of the Outer Space Treaty (and the provisions of the subsequent Liability Convention) need not be passed directly to, private entity. Instead, it is a matter for the State to decide whether and to what extent it will impose liability.

4 Hurwitz BA, *State Liability for Outer Space Activities*, Martinus Nijhoff, 1992, p. 39.

5 Articles I and II.

As it was mentioned above when the Outer Space Treaty was adopted by the United Nations general assembly in 1968 space activities were the exclusive domain of the Soviet Union and the United States. This remained the case when the Liability Convention was adopted in 1972. At that time there were no international joint efforts, even less the participation of the private sector, in space activities. Four decades later; however, most activities are conducted by commercial concerns operating on a multinational level. The Liability Convention is proving to be inadequate in addressing the issue of the third party liability, private space activities and the settlement of disputes.⁶

2. The Liability Convention does not apply to: (i) nationals of the launching State, and (ii) foreign nationals who participated in the operation of that space object. The first exception is an application of a basic principle of International Law which refrains from dealing with relations between a State and its nationals, and the second was designed to exempt the launching state from liability for foreign observers who accepted invitations to take part in or observe a launching or recovery since these persons could be considered to have assumed any risk entailed. Nonetheless, this exclusion does not imply that the launching State might not pay compensation: it might be paid, for example, under article VII of the Outer Space Treaty.⁷
3. The Intergovernmental Agreements on the International Space Station contemplates a special regime for the allocation of liability which includes liability arising under the Liability Convention. Its objective is to establish a cross-waiver of liability by the Partner States and related entities with the purpose of encouraging participation in the exploration, exploitation, and use of outer space through the Space Station. Cross waivers of liability originated in the first launch services agreements executed by the National Aeronautics and Space Administration (NASA), were later adopted by all major launch carriers around the world. They constitute the milestone of any space risk management system and are generally complemented by other space risk management tools, which make the risk allocation and assignment of liability in the space field a complex system with well-defined characteristics. By means of these waivers of liability, each party agrees to be responsible for any damage which it sustains as a result of damage to its own property and employees, whether the damage is caused by the carrier, the customer or other customers involved in the space transport operations and waive all claims against the other parties. The international agreements, usually, are complemented by the obligation imposed on all parties to the agreement to include similar waivers of liability in their agreements with other related entities, so that each will assume its risks and will not sue the other participants.
These waivers of liability consist of (i) a general assumption of risks by each party, (ii) the assumption of the consequences of those risks, (iii) a consequent

6 Article III.

7 Cheng B., *Studies in International Space Law*, Oxford: Clarendon Press, 1997, p. 330.

waiver of rights to make a claim for liability, and (iv) an indemnification or hold harmless provision in case of actions filed despite the waiver. The purpose of the reciprocal waivers of liability is twofold: first to limit the claims that might arise from a launch, and second to minimize the need to obtain insurance to protect against claims which may otherwise derive from the launch. In effect, under a reciprocal waiver of liability a party is precluded from making a claim, whether judicial, administrative or otherwise, to the other party or parties to the reciprocal waiver of liability agreement.⁸

III Challenges

The following issues to international space law liability represent serious challenges:

1. Applicable criteria under Article VII of the Liability Convention are that the State which launches or procures the launching of an object into outer space is liable. One of these challenges is the question as to whether international liability applies at all in the case where a private entity launches an object into outer space. Unlike the Article VI, no mention is made in Article VII as to non-governmental entities, therefore, placing in question whether the activity of a private entity, which in fact launched or contracted for the launch could result in liability of its State. The consequence of a negative answer to this question might be that States do not provide in their domestic legislation for any recourse against the private entity in such a situation.⁹
2. The launching State is absolutely liable and is liable in different degrees of fault, but in final consequence the State is liable for damage caused by a private enterprise. This certainly affects space tourism. It is imaginable that States refuse to allow private enterprises to perform space tourism, or that States set up exaggerated requirements just because of the above mentioned state-liability. This could lead to some kind of forum-shopping towards launching States that either cannot or do not want to grant sufficient control over space activities, or that - in case of damage - would not pay compensation anyway, because of the lack of legal tools for enforcement. Therefore, unlimited liability of States practically according to the Liability Convention is cut by international agreements that stipulate a limited but guaranteed maximum-amount-liability for space tourism.¹⁰
3. Since the provisions of Liability Convention have never been specifically invoked in anger, there are significant uncertainties in the interpretation of its provisions. Controversial in the commercial operations remained the definition of a launching State and it's applicable to the multinational nature

8 Kayser V., *Launching space objects: issues of liability and future prospects*, Kluwer 2001, p. 262.

9 C.Q. Christol, *The Modern International Law of Outer Space*, Pergamon Press, 1982, pp. 39-42.

10 Gimblett, R, *Space Insurance into the Next Millennium*, in: *Outlook on space law over the next 30 years*, Kluwer 1997, p. 163.

of the space industry today. On the commercial reality in launch industry is that the launch operator is not generally the entity that will operate and control the satellite once it has been inserted into orbit. In such cases it would be an injustice to continue to impose liability on the launching States, when they no longer had any control or influence over the operation and control of the space object. The issue of procuring a launch has raised a problem in the context of private launch activities. The mere link of nationality of a private launch operator is not sufficient to make that State a launching State. The State must actively request, initiate or promote the launching of the space object to have procured the launch. An active role on the part of the State of nationality may be considered unnecessary for a State to be considered to have procured a launch. In such a context the procumbent requires actual control over the launch or the payload in orbit is clearly an acceptable one.¹¹

4. Furthermore it should be mentioned that environmental questions are not part of the Liability Convention so that damage caused to outer space is not covered.
5. The concept of fault as used in article III of the Liability Convention has different meaning in different legal systems. In civil law system fault is generally interpreted by the courts on a case by case basis while fault is often associated with negligence in common law systems thus necessitating considerations of the applicable duty and standard of care. In practice this discrepancy in the legal notion of fault in different legal systems may be of substantial consequence.¹²
6. The Liability Convention on damage occurring in outer space only refers to the loss of human life or damage to people on board space vehicles, no reference is made to incidents that may occur during one of the many Extra-Vehicular Activities (EVA). In the event of an astronaut's collusion during EVA with a space object registered by another State, or in the event of his space-suit being torn by space debris, according to the Liability Convention, this would be a case of collusion between space objects. Even the space suit, necessary for survival in outer space, could be considered a space object, within a wider concept referring to any object capable of "assuring human conditions of life or allowing the transit of persons throughout outer space or celestial bodies". The question is that of identifying the subject holding jurisdiction over astronauts outside the space station and the transport vehicle, who could be considered being responsible for the astronaut's activity.¹³
7. The launching State retains jurisdiction over personnel on board the space object, but a problem arises concerning space tourists not being part of

11 Wayne White, The Legal Regime for Private Activities in Outer Space. See in <www.spacefuture.com/>.

12 Change B., Article VI of the 1967 Space Treaty Revisited: International Responsibility, National Activities and the Appropriate State *Journal of Space Law* 26:1, 1998, 7.

13 Catalano Sgrosso., Legal Aspects of Astronauts in Extravehicular Activity and of "Space Tourists" See in <www.esa.int/>.

personnel, but just passengers. The Liability Convention does not contemplate the problems of civil liability, but only those of States' liability. It is not enforceable to the damages caused to any passengers or crew of a spacecraft during the commercial activity of transport.¹⁴

8. Another gap of the Liability Convention is that nationals of the launching State are excluded from the scope of the Liability Convention.

IV Solution and Proposition

The authors are of the opinion that it is better for international community to provide a new treaty on private international space law by modeling the Intergovernmental Agreements (IGA) and private international air law which could complete the shortages of the Liability Convention.

1. The Intergovernmental Agreement (IGA) have been established during a phase of the Station program when the partner States were concentrating on the various aspects to be included within the development of the program itself. The dispositions on the various stages of development are detailed and clear, whereas those directly linked to usage operations are vaguer and therefore require a greater interpretation effort in the event of application to concrete events. The will to establish a common legal regime on specific questions, seems to be the direction suggested by the doctrine and practice of partner States for future developments of the legal framework of new liability regime. The agencies are required not only to regulate the conduct of the astronauts according to their own specific personnel policies, in accordance with the IGA, but also according to the rules of the code which the astronauts are required to understand and accept. Crew members are required to conform to the dispositions indicated in the code, the application of which is in force the moment they are assigned to a specific mission, lasting until post-flight activities are completed. The IGA establishes that each State maintains jurisdiction and control over its personnel, it has been necessary to involve the States in the decision and internal application of the code rules. The risk allocation regime established under the International Space Station Agreement constitutes an exception to the liability regime in the Liability Convention; however, it can be used in new treaty. The Liability Convention allows the possibility of arrangements between launching States to distribute the risks arising from a joint launch. The risk allocation regime, however, may not impair the right of a non participant State sustaining damage to seek the entire compensation due from any or all of the launching States. It is thus submitted that the risk distribution regime of the International Space Station agreement qualifies as an agreement among launching States to redistribute their financial obligations in terms of article V of the

14 See Catalano Sgrosso, Application of the rules of the Code of Conduct to the First Crews on board the International Space Station, in Proc. Of the 45th Colloquium on the Law of Outer Space, Houston, USA, 2002, p. 77 and fall.

Liability Convention. The risk allocation regime is valid only among these States. Furthermore, article XXIII of the Liability Convention supports this conclusion, as it further prescribes that the Liability Convention has no effect on other treaties so far as relations between parties are concerned and that States can enter into treaties reaffirming, supplementing or extending its provisions, provided, however, that this regime do not affect the rights of the victims.¹⁵

2. Much law that is required will be basically a simple extension of aviation law. Aviation is a huge, popular, profitable, global business, operating within a network of international law. It will be much simpler to add to this to cover private international space law.¹⁶

There are manifold reasons to take air law into consideration.

The used transport-technology that will probably be a space plane with the capability to be used for space and air transportation as well the planned high frequency of flights that imply to use infrastructure of modern airports, horizontal take-off and landing, just to mention a few. Striking criteria for the law applicable could be purpose and function, technical configuration and capabilities, and the medium where the operation predominantly takes place. Another point is the conformity to the aircraft definition that can be found in the Chicago Convention 1944. So a transport-system which conforms to this aircraft definition but also has the purpose and function to be used for space-flights could fall into the scope of air law as well as into the scope of space law. It is out of question that space flights that necessarily cross airspace do not violate the sovereignty of the respective States. This right of passage through airspace is not applicable for aircrafts that predominantly are used to move in airspace.¹⁷

There are other elements of air law that make it attractive to use air law at least as a source of legal configurations that might fit to space tourism. One of these elements is the safety-standard stipulated by the Chicago Convention 1944. Certification and standardization is crucial to make risks calculable, e.g. as well for the safety of life, health and property on one hand, and for risk-management for insurances and the involved launching State on the other hand. The USA created the Space Launch Act that regulates the requirement of a license to launch a space vehicle and the requirement to monitor activities of such licensees. This is a good model for an international liability regime on commercial use of outer space (i.e., space transportation).

The space law does not yet conform to the development of this innovative field. In space law there is still no definition that clearly draws the line between crewmembers and passengers, as there is in air law. However, air law has classified two different kinds of persons on board: the crew on one side and the

15 Julian Hermida, *International Space Law*, Kluwer Academic Publishers, 2004, p. 27.

16 S.C. Koops-Jubitana, *Commercial Launch Activities: Launch Contracts and Launch Insurance-Liability Aspects* LL. M Thesis Leiden University, 2006, p. 10.

17 J. Hermida, *Norms governing launch services by NASA and commercial US private companies*, (LL.D. Thesis, Catholic University of Cordoba, Doctorate of Laws Thesis 2000, p. 126.

passengers on the other; this division leads to different legal considerations, and to different protection and treatment.¹⁸

Therefore, there is a need for an International Convention in space transport such as established by the Montreal Convention 1999 subsequently to the Warsaw Convention for aviation. Regulations of the Montreal Convention 1999 for the Unification of Certain Rules for International Carriage by Air, done at Montreal on 28 May 1999, which entered into force on 4 November 2003 could serve as models in space transportation provided that a 'Convention for the Unification of Certain Rules Relating to International Carriage in Space' can be agreed under the auspices of the United Nations, following the example of Montreal Convention 1999, which lays down new rules on liability in respect of the international carriage by air of persons, baggage and cargo. One cannot deny there is similarity between air and space carriage, both regarding travel of passengers and carriage of cargo (e.g. minerals in the case of space cargo). In principle, Article 17 and 18 of the Montreal Convention 1999 regarding liability of the carrier could read in the case of the space carrier for death and injury of passengers-damage to payload or to cargo.¹⁹

Another element is the limitation on compensations to a maximum amount, as can be found in the Warsaw System. The States can broaden the limited liability regime, set by the Warsaw Convention 1929, to space law, in order to overcome the problem of the lack of responsibility over space flight passengers. The Warsaw System sets the transporter's responsibility over that of the passengers. The legal status of the space tourist has not been set yet, and neither has the relevant regulations concerning rights, duties and responsibility.

Everybody who travels by airplane knows about remaining risks and compromises by putting up with the maximum-amount-limit of the Warsaw Convention that covers a range from damage and loss of luggage up to loss of life. This limitation is in our eyes not just a welcome solution, but a mandatory one for space tourism, last but not least for liability- insurance-reasons.²⁰ The practical realization of this could e.g. take place by implementing this into a new international treaty, dealing with commercial use of outer space. Once again the provisions of Space Launch Act can provide models for concrete regulatory contents.²¹

Space tourism will not benefit from a situation such as in the maritime sector where "cheap-flag-states" tolerate ships and crews that are beyond all sensible safety-requirements. So it will be the most appropriate solution to create an international treaty that grants an equal standardization and leads to more transparency and reliability for private enterprises in space tourism or any other

18 Bostwick P.D., *Liability of Aerospace Manufacturers: MacPherson v. Buick Spatters into the Space Age*, J.Sp.L 22, 1994, p. 80.

19 Van De Wouwer J.L. & Lambert F., *European trajectories in space law*, 2006, pp. 175-177.

20 Convention for the Unification of Certain Rules Relating to International Carriage by Air, Warsaw, October 12th 1929.

21 Maniatis D., "The Law Governing liability for Damage Caused by Space Objects: From State Responsibility to Private Liability", XXII Ann. Air & Sp. L, 1997, p. 373.

commercial activity in outer space. Without any doubt a national legislation could be established according to the principles of such a treaty.²²

Space tourism necessarily contains *inter alia* aspects of space transportation, manned space flight, and commercialization of outer space. Related to existing space law treaties there is a need for an international agreement to prevent space tourism and other commercial projects in space from severe conflicts with these treaties. There have been efforts made to create such an agreement, to mention one, e.g. the Draft Convention on Manned Space Flight that deals with basic aspects of above mentioned topics.

The approach of international space law needs to be deeply reconsidered and re-defined to enable private enterprises to (directly) perform outer space activities like space tourism. Otherwise space tourism will have to be performed by private enterprises under the regime of States, which provokes conflicts that can be avoided. It is quite clear that neither pure air law nor pure space law could solve the existing problems with space tourism. The desirable solution could be a differentiating stage-to-stage system, that makes e.g. air law applicable in air space and space law for outer space, or a strictly purpose oriented system, or a completely new international instrument that combines all these elements especially designed for the needs of commercial space activities in legal code.

There arise in the future concrete factual situations that make desirable or even necessitate consideration of one or more specific amendments to the space treaties. However, consideration of such amendment(s) should not take place in the abstract. It is up to these States to decide how to abide by their international obligation of authorization and continuing supervision. In cases where their non-governmental nationals conduct such activities and whether in the event of damage caused by the latter, the State wishes to apportion all or a part of such liability to such actors.

V Conclusion

Since 1972, the Liability Convention has provided guidance on the legal principles to be applied in the case of damage caused by space activities. However, its provisions remained untested and some of the uncertainties that exist in the Liability Convention continue to fuel academic debates on many occasions. This is further complicated by the increasing privatization and globalization of the space industry at a pace not foreseen by the authors of the Liability Convention, promoting several States to recognize the need to adopt a new legislation in order to be able to pass on the unlimited internationally liability under the Liability Convention to private operators.

The Intergovernmental Agreement is a structure of rules that can be considered as a framing law to regulate documents on the matter specifically established for the space activities.

22 Christol C.Q., *International Liability for Damage Caused by Space Objects*, A.J.I.L. 74, 1980, p. 351.

There are elements of air law that make it attractive to use air law as a source of legal configurations that might fit to space tourism. While this is unlikely to occur in the near future, it will eventually become necessary for States to reform the liability regime for space activities, similar to the liability frameworks in place in private international air law, in order to reflect the nature of the space industry and to reduce the emphasis being placed on States to be liable for the activities of private operators.