

LIABILITY ISSUES ON SPACE DEBRIS THE OPINION OF A TEACHER IN INTERNATIONAL LAW

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ABSTRACT: The opinion of a teacher in international law is that, at the present time, the main reliable source of law concerning space debris lies in Article III of the Liability Convention: a launching State is liable only if the damage occurring in outer space is due to its fault. Two main problems arise from this provision: it is necessary to know what constitutes a fault in outer space; it is also necessary to prove there has been a fault and to attribute it to a launching state. This is not an easy task.

If a set of technical norms is adopted, in order, for instance, to avoid the multiplication of debris, one might consider it would be a fault not to comply with the new technical requisites.

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In a more radical move, one may consider it is necessary to switch from responsibility for fault to absolute liability in outer space as well as on Earth. Is the international community of spacefaring nations ready to accept such a move ?

Among the numerous works written by Manfred LACHS, one of them has made a great impression on me a decade ago. The modesty of its title: *The Teacher in International Law*,¹ and the value of its content, a review of international law doctrine through centuries, were astonishing.

I cannot resist recalling the introduction of this book: "In opening these pages, the reader may be in

doubt as to what he (or she) may expect to find in them. The title may promise too much and lead to disappointment". Indeed there was no place for disappointment and when I was asked by Pr. Kopal and Pr. Christol to present a paper at this roundtable, first of all, I felt very honoured to have been approached in order to speak on this subject. Just after, I could not help wondering: what would be, in 1993, the opinion of a teacher in international law on the theme of space debris?

In choosing the title of this paper, I intend to pay tribute to the late Manfred LACHS although I would, of course, not dare to compare myself with any of the great names who are the subject of his book and who are the creme of international law. I also wish to emphasize that concerning an issue as important as space debris, in consideration that many great names among space lawyers have enhanced the discussion², the only chance I had to attract your attention was to examine this question from the viewpoint of a simple teacher in international law. Moreover many reports have been issued on the technical aspects of the problem³. In this respect, I think that one of the most important tasks of the teacher is to distinguish existing law from suitable law.

Although responsibility is related to any branch of law, it is worth recalling that it has not yet been the subject of a general treaty. Custom governs responsibility except in a few areas. Space law is one of these exceptions as responsibility is incorporated in international conventions. It is the centre point in article VI of the Outer Space Treaty. Liability for damage is the important point of Article VII of the same treaty.⁴ Indeed, liability for damage caused by space objects is the intention of the 1972 Convention, specially drafted in order to solve these issues. Moreover, the information required by the 1975 Registration Convention ought to be most useful in order to determine which state is to be liable⁵.

One of the well-known difficulties in this respect is that the Liability Convention does not contain any definition of the term "space object". It only indicates that the term includes "component parts of a space object as well as its launch vehicle and parts thereof" (Article 1, d) which makes this issue a somewhat confusing one (the Registration Convention, adopted three years later, contains the same definition). But I do not consider that this problem is insolvable for the three following reasons:

* First of all, this issue is now well known⁶; and many academics have expressed their views on the subject.

* Secondly, the *Principles on the Use of Nuclear Power Sources in Outer Space* adopted by the United Nations General Assembly on December 14th 1992 (resol 47/68) contain a useful definition: the term "launching State" means "the State which exercises jurisdiction and control over a space object with nuclear power sources on board at a given point in time relevant to the principle concerned". Although this definition is included in a text which is not binding, it seems that it could be a prominent element in the future, dealing with the problem of space debris. Either we consider that a State which no longer exercises jurisdiction *and* control cannot be held liable for fault. Or alternatively a launching State remains liable for damage from the point of launching. At the present time, no provision in the Outer Space Treaty or the Liability Convention indicates that jurisdiction and control are necessary prerequisites to sue a State. Nothing indicates that liability disappears by prescription after five, ten or twenty years.

* The third element concerns definitions. In my opinion it is safer to trust interpretation than trying to

improve definitions which could, in future cases, impair flexibility⁷. Future disputes involving space debris could effectively allow a State to escape liability on a no fault basis on the ground that the State had no control of the debris. Indeed, existing law is based on fault.

1) EXISTING SPACE LAW: LOOKING FOR FAULT

* First of all, we must consider some established facts. The *position paper* of the *ad hoc* expert group came to the conclusion that a debris is man-made, it is Earth orbiting and it is non-functional. It seems to me that these three criteria are conclusive. It does not appear to be very important to distinguish between a unitary space object or parts thereof. As soon as a space object is non-functional, whether it is unitary or not, the key element is that it cannot be controlled from Earth. The launching State has no opportunity to manage it, except by removing it from outer space. This can be difficult to achieve either for technical or financial reasons and usually both.

* Secondly one must consider the established rules. Firstly, States Parties to the Outer Space Treaty are always

responsible for national activities in outer space (Art. VI OST). Launching States are always internationally liable for damage caused by the space object on Earth, in air space and (if there is a fault) in outer space (art. VII OST). The same text indicates that a launching State is the one which actually launches or procures the launching and the Liability Convention (art. I. c) considers that the launching State is also a State from whose territory or facility a space object is launched.

I do not intend here to consider the case in which debris causes damage on Earth or to aircraft in flight. Fortunately such accidents have been very rare. Furthermore from the point of view of a space lawyer, accidents causing damage on Earth or to aircraft in flight do not differ from those arising from launching. When damage is caused on the surface of the Earth or to aircraft in flight, the launching State shall be absolutely liable (Art. II, Liability Convention).

At present, the main matter of concern for spacefaring States, engineers, lawyers and others, when dealing with the multiplication of space debris, is the damage caused in outer space to a space object of another launching State or to persons or property on board such a space object.

If this occurs, the launching State shall be liable "only if the damage is due to its fault or fault of persons for whom it is responsible". In the present state of the law, it is not certain that there is a difference between damage caused by an operating orbiting spacecraft or debris. Assuming that debris is the result of space activities, the first issue is to identify the launching State related to specific debris.

The second issue is to be able to judge what is the concept of fault in outer space. This is the fundamental problem. It amounts to defining what fault is and, if necessary, how to establish that there has been fault.

Liability for fault is currently used in municipal law. Yet, even in Roman law systems, statutes do not usually give any definition of fault (see for example art. 1382 of the French Civil Code). The judge here has to deal with a more or less vague concept. It appears to me that the creative role of interpreters is very important and this in turn may allow the evolution of jurisprudence.

It is worth noting that absolute liability is currently used for activities which are not forbidden by international law. Obviously, space activities cannot be restricted because this would be

inconsistent with the principle of freedom of exploration and use of outer space, embodied in art. I § 1 of the Outer Space Treaty. If this were so, one would have to amend this treaty. No present spacefaring nation is ready to do so. No future spacefaring nation either. At the present time, such an amendment cannot seriously be taken in consideration. Thus, we have to consider that as space activities are not prohibited by international law⁸ the natural ground would be absolute liability which is particularly suitable for hazardous activities.

But in the present state of the law, if damage is caused to an operating space object, someone has to pay for it and this can be done only if it is possible to attribute fault to a launching State. This would be an extremely difficult task because nobody really knows what kind of action (or inaction) could constitute a fault in outer space. For instance a recent (August 1993) report has been issued after a seven-month investigation into the destruction (which occurred on December 1992) of the Australian Optus B2 Satellite, aboard a Chinese Long March rocket. The fault was attributed neither to the satellite manufacturer (Hughes Space and Communication Co) nor to the launch vehicle maker (China Great Wall Industry Corporation). This is a very

significant fact. Indeed, if it is impossible to attribute fault when a satellite is lost one minute after launching, one may easily conclude this will be quite impossible when the loss occurs at any time after a collision with debris. It has been suggested that some failures of space objects may have been caused by some debris.

Moreover, one may also contemplate that two parties reach a compromise because they are still within commercial relations and do not want to admit fault⁹. Thus it is clear that if damage arose, every party would have to bear the loss. However, I would like to emphasize that such a result is not completely unsound. After all, cross waivers of liability are of common use in space activities and they are not often questioned. Outer space activities must be treated differently from damage occurring on the surface of the Earth where the potential victims cannot in any way be protected. In outer space, each party is on equal terms. Thus we have to take into consideration that when damage arises in outer space, it has nothing to do with damage occurring on earth because there is no third party involved.

2) PROSPECTIVE LAW

Progress in this matter depends either having criteria in order to define an operational concept of fault or changing the basis of liability and have a new text declaring that absolute liability will be used even if the damage arises in outer space. But in the meantime, it may be useful to turn to emergent rules of customary international law.

2.1. EMERGENT CUSTOMARY RULES

I do not intend to revert to the technical measures which can be adopted in order to mitigate the harm posed by debris. But for lawyers it is certain that from the moment launching states adopt certain specific standards, one may consider it is a fault not to comply with the standard behaviour.

If guidelines for launching states are negotiated, and even if there is no legal text on the matter, it is easy to imagine that non compliance with the usual norms will be considered as a fault.

Moreover, even if such guidelines are not put into words, it is perfectly understandable that the behaviour of States will be considered as a custom.

Let us take a simple example: one now considers it is routine to send satellites operating on the geostationary orbit to a higher orbit (while there is a little fuel left on board), in order to avoid a collision in the future of a non-functional object with a very useful and expensive telecommunications satellite¹⁰. Some satellite operators, that is States or international organisations, already do this¹¹. It is easy to understand that failure to do so in due time would constitute a fault and consequently render a launching state liable for damage for breach of custom. I will suggest this is already an emergent rule of customary international law because launching States or organisations not only do so but consider they are obliged to do so.

This is no fiction. A few years ago, two States (let us call them State A and State B) launched a satellite which soon became unable to fulfil its mission. It was then decided to send it to another orbit where it would not be a danger for operative space objects. But just before the manoeuvre was to be effective, the engineers of State A discovered this non operative satellite could be used to perform scientific tests (during one month) which could be useful for further research. State B then protested. They contended that if this non functioning satellite caused damage to another

space object during the test period, they would not accept joint liability (according to article V § 1 of the Liability Convention) for this damage. A written agreement was then concluded. (the details of which I will not describe). Fortunately, no damage ever occurred and one month later, the satellite was safely sent to a higher orbit. But it seems to me this example clearly illustrates that a customary process probably emerged or crystallized a few years ago.

Some of you could probably present similar cases, and I do not think that any launching State would openly disagree with this policy. Since the *North Sea Continental Shelf Case* (I.C.J. Judgment dated February 20, 1969), we know that customary process can be completed within a few years, "provided that within the period in question, short though it might be, State practice, including that of States whose interests are specially affected, should have been both extensive and virtually uniform... and should moreover have occurred in such a way as to show a general recognition that a rule of law or a legal obligation is involved" (ICJ Rep. 1969, § 74 p. 43). It seems to me this is already the case with the geostationary orbit.

Developing this further, as the Liability Convention does not set any time limit for liability, it could be useful to create a procedure regulating the act of abandonment of a space object by the State which retains jurisdiction and control over it. Unless this has been done the State would be considered responsible for the space object even if it is inoperative.

2.2 TOWARDS ABSOLUTE LIABILITY

As some people know, I consider myself a minimalist lawyer. That is I have a propensity to think it is usually wiser to adopt a "wait and see" approach and it is often not necessary to create new texts. I believe it is more advisable to wait and see what happens when some interpreter will have to decide on a particular problem.

But on the subject of space debris, I have to alter my opinion and I strongly support the proposition of Carl Christol and many learned colleagues: it is advisable to adopt a text providing for absolute liability in outer space¹². Obviously, this will not be achieved in a short period of time. It is not necessary for this development to occur immediately because, in the meantime, customary international law can provide a legal basis for fault.

A simple approach would be to amend article III of the 1972 Liability Convention in order to indicate that the legal standard to be applied to the responsibility of the launching State should be absolute liability. One would have to abandon the standard of fault.

However, a majority of States Parties to the Convention would have to accept such an amendment and, afterwards this amendment should enter into force for each remaining State Party to the Convention on the date of acceptance by it (see art. XXV of the Liability Convention). Thus, for a few years, two different treaties would coexist. A first group of States, not having accepted the amendment, would be bound by the original text of the Convention. At the same time, another group of States would be bound by the new text. This solution, obviously, is not the best one. It is therefore more advisable to draft a new text completely devoted to the question of space debris, but also taking into account the existence of the Liability Convention and other relevant texts.

This cannot be achieved in one or two years. Before the drafting, the adoption and the entry into force of a new text, one could rely on the development of the customary process.

I am sure that during the transitional period any interpreter or people in charge of deciding an issue involving space debris could use the emergent customary rules in order to clarify the concept of fault included in article III of the Liability Convention.

¹ Martinus Nijhoff, 1982.

² Without intending to make an inventory of the numerous works devoted to this subject, one may cite: Col. R. L. Bridge & Lt. Col. M. L. Smith, *Space Debris: A Role for Lawyers*, Proceedings I.I.S.L. 1990, 266-269; C.Q. Christol, *Suggestions for Legal Measures and Instruments for Dealing with Debris*, in *Environmental Aspects of Activities in Outer Space*, K. Heymanns Verlag, 1990, 257-258; S. E. Doyle, *Regulating Space Debris: What Can Be Done About It?* Scientific Legal Roundtable, I.I.S.L. Proceedings, 1990, 421-423; Hon. E. Finch, Jr., *Future Space Commercialization and Space Debris*, Proceedings I.I.S.L. 1991, 168-170; W. Flury, *Space Debris Mitigation & Policy Issues*, Journal of Space Law, vol. 21, 1993, at 46-50. Ram S. Jakhu, *Space Debris in the Geostationary Orbit - A matter of concern for the ITU*, I.I.S.L. Proceedings, 1991, 205-214; V. Kopal, *Issues Involved in Defining Outer Space, Space Object and Space Debris*, I.I.S.L.

Proceedings, 1991, 38-44. L. Perek, *Technical Aspects of the Control of Space Debris*, Scientific/Legal Roundtable, I.I.S.L. Proceedings, 1990, 400-407; G.C.M. Reijnen and W. de Graaf, *The Pollution of Outer Space in Particular of the Geostationary Orbit*, M. Nijhoff, 1989.

3 See the following documents: ESA, *Report of the Space Debris Working Group*, ESA-SP 1109, November 1988; *Report on Orbital Debris*, by Interagency Group for National Security Council, Washington, February 1989; U.S. OTA, *Orbiting Debris: A Space Environmental Problem*, Background Paper, 1990, Congress of the United States, Washington. M. Lambert, *Shielding Against Natural and Man-Made Space Debris: A Growing Challenge*, ESA Journal, 1993, 31-42. *Position Paper on Orbital Debris* compiled by an Ad hoc Expert Group of the International Academy of Astronautics Committee on Safety, Rescue and Quality, March 8, 1993.

4 See K. Böckstiegel, *Commercial Space Activities: Their Growing Influence on Space Law*, *Annals of Air and Space Law*, 1987 at 182; also F. von der Dunk, *Liability versus Responsibility in Space Law: Misconception or Misconstruction*, I.I.S.L. Proceedings, 1991, 363-371.

5 See Christol (C. Q.), *The Modern International Law of Outer Space*, Pergamon Press, 1984, p. 239.

6 See for instance S. Gorove, *Space Debris in International Legal Perspective*, I.I.S.L. Proceedings, 1989, 97-99; also *Toward a Clarification of the Term "Space Object"- An International and Policy Imperative*, *Journal of Space Law*, vol. 21, 1993, at 11-26; I.H. Ph. Diedericks-Verschoor, *Workshop on Space Debris Held at the COSPAR Congress*, *Journal of Space Law*, 1990, 143-147. V. S. Vereshchetin; *Environmental Risks Arising of Space Activities and their Legal Mitigation*, in *Recent Developments in Space Law*, Rome Colloquium, March 1992.

7 See P.M. Martin, *Legislator Versus Interpreter: How Far to Supplement Space Law*, I.I.S.L. Proceedings, 1992, 97-101.

8 See Jimenez de Arechaga (E) & Tanzi (A), *La responsabilité des Etats* in M. Bedjaoui, *Droit international, Bilan et perspectives*, Pedone, 1991, vol. I, 367-402.

9 See "Investigation Criticized", *Space News* vol. 4 n° 33 (August 22-29, 1993, at 4 & 21).

10 Indeed, one may lose a few weeks or month of utilisation because it is somewhat difficult to

estimate how much fuel is left in the space object.

¹¹ This is for instance the policy of Intelsat and other international organisations (See I.H. Ph. Diedericks-Verschoor, *An Introduction to Space Law*, Kluwer, 1993, p. 119).

¹² Carl. Q. Christol, *Scientific and Legal Aspects of Space Debris*, IISL Proceedings, 1993.