IAC-02-IISL.4.04

A new look at the „launching State"

The results of the UNCOPUOS Legal Subcommittee Working Group „Review of the concept of the ‚launching State'" 2000-2002[1]

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Abstract

The legal concept of the „launching State" is a crucial element of two of the United Nations treaties on outer space: the Liability and Registration Conventions. It identifies, inter alia, those states that may be liable for damage caused by a space object and would have to pay compensation in such a case. Furthermore, „launching States" may also be responsible for registering a space object.

The concept was the subject of a working group of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS). This working group conducted its deliberations from 2000 to 2002 and presented its conclusions during the 2002 session of the Legal Subcommittee. These conclusions, accepted by the Member States of UNCOPUOS, will be put forward to the UN General Assembly in autumn 2002. They are the first result of intergovernmental discussions on the question of whether the legal concept of the „launching State" is still adequate, and how it is applied, in view of the changing environment of space activities.

This paper analyses the issues that have arisen in the application of the legal concept of the „launching State" that led to the establishment of the working group on this subject in the Legal Subcommittee of UNCOPUOS.

It also presents in detail the results of the deliberations of the working group and discusses the consequences of these results for the further development of space law on the international as well as the national level.

1. Making the concept of the „launching State" an issue

The term "launching State" is based on Art. VII of the Outer Space Treaty and formulated identically in Art. I(c) of the Liability Convention and Art. I(a) of the Registration Convention the following way:

„The term ‚launching State' means:
(i) A State which launches or procures the launching of a space object;
(ii) A State from whose territory or facility a space object is launched;"

[1] *Kai-Uwe Schrogl* was Chairman of the UNCOPUOS Legal Subcommittee's Working Group on the review of the concept of the „launching State", and *Charles Davies* was Secretary of the Working Group. The authors present their personal views; this paper does not reflect the views of the United Nations or DLR. They would like to thank *Petr Lála*, *Robert Wickramatunga* and *Philip McDougall* for their support and contributions during the conduct of the Working Group. An updated version of this paper will be published in the German Journal of Air and Space Law (ZLW).

This concept has recently been challenged by a specific space activity: the SeaLaunch venture.[2] Established in 1995, it launched its first test vehicle in 1999 and started full operations in 2000. It comprises a number of features, each making it difficult to fully apply the concept of the „launching State" at first glance:

- it is a private venture comprising companies from numerous States (in particular U.S.A., Russia, Ukraine, and Norway),
- the headquarters of the company were located in the Cayman Islands, a U.K. overseas territory, but recently moved to Long Beach, California, U.S.A.,
- the rockets are launched from a converted oil drilling platform on the high Seas.

The potential problems in identifying one or more „launching States" in this setting were first brought up in academic circles. In particular, Prof. Armel Kerrest from the University of Brest, beginning in 1997, examined these questions.[3] Following this signal, numerous institutions and fora, in particular the International Institute of Space Law (IISL) and the European Centre for Space Law (ECSL), continued the discussion of this issue in the academic field.[4]

The issue is particular in a second respect, since it was immediately taken up by policy- and law-makers. Agreement on a number of older proposals for new agenda items for the Legal Subcommittee has not been reached, a good example being legal aspects of space debris, which was first proposed almost one decade ago. Another example of an issue that was taken up rapidly by the Subcommittee, however, was nuclear power sources, which was put on the agenda following a major accident. Since no accident and particular legal conflict had happened with the „launching State", its acceptance as an agenda item in the Subcommittee had to coincide with other developments. The prime coincidence was that in 1998 a new agenda item had been established in the Legal Subcommittee dealing with the „Review of the Status of the Five Legal Instruments Governing Outer Space". Europe, at that time, wanted to contribute to this new item and singled out the Registration Convention, which – in its view – could be improved through various measures. It therefore prepared a working paper containing five proposals how to improve the Registration Convention comprising for example the introduction of time limits for furnishing information and extending information requested on space objects.[5] One of the five proposals concerned the concept of the „launching State" and contained the following proposal: para „11(c) (...)it should be investigated whether the definition of the term „launching State" still adequately covers all launching activities;(...)". The „launching State" had thus immediately become „an issue".

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[2] www.sea-launch.com

[3] *Armel Kerrest*, Launching spacecraft from the sea and the Outer Space Treaty: The SeaLaunch project, IISL-97-IISL.3.15 and *Armel Kerrest*, The Launch of Spacecraft from the Sea, in: *Gabriel Lafferranderie/Daphne Crowther* (eds.): An Outlook on Space Law over the Next 30 Years, The Hague/London/Boston (Kluwer) 1997, 217-233.

[4] See e.g. *Edward Frankle/E. Jason Steptoe*, Legal Considerations Affecting Commercial Space Launches From International Territory, IISL-99-IISL.4.02; *Armel Kerrest*, Remarks on the Notion of Launching State, IISL-99-IISL.4.03; *Marialetizia Longo*, Legal Aspects of Launching Space Objects From Non-Terrestrial Sites, IISL-99-IISL.4.08; *Edward Frankle*, Once a Launching State, Always *The* Launching State?, IISL-01-IISL.1.04; *Alvaro Fabricio dos Santos*, Brazil and the Registration Convention, IISL-01-IISL.1.11; *Kai-Uwe Schrogl*, Is the legal concept of the „launching State" still adequate?, 3rd ECSL Colloquium on International Organizations and Space Law (Perugia), 1999, 327-329; *Christian Kohlhase/Philip S. Makiol*, Report of the „Project 2001" Working Group on Launch and Associated Services, in: *Karl-Heinz Böckstiegel* (ed.): „Project 2001" – Legal Framework for the Commercial Use of Outer Space, Cologne (Carl Heymanns) 2001, 55-102; *Roger Close*, UK Outer Space Act 1986: Scope and Implementation, in: *ibid.*, 579-590. The concept of the „launching State" was already highlighted in connection with the drafting of the Principles on the Use of Nuclear Power Sources in Outer Space in 1992 (Principle 2), see *Marietta Benkö/Gerhard Gruber/Kai-Uwe Schrogl*, The UN Committee on the Peaceful Uses of Outer Space: Adoption of Principles Relevant to the Use of Nuclear Power Sources in Outer Space and Other Recent Developments, in: ZLW(42,1) 1993, 35-64, here 38-39.

[5] Working paper submitted by Germany on behalf of 19 other European States (Member States of the European Space Agency (ESA) and States having signed cooperation agreements with ESA), UN Doc. A/AC.105/C.2/L.211/Rev.1 of 30 March 1998.

2. Establishing the work plan 2000-2002 on the agenda of the UNCOUPOS Legal Subcommittee

The issue of the legal concept of the „launching State" entered the agenda of the UNCOPUOS Legal Subcommittee with a comparably short preparatory period. This is particularly remarkable since the agenda setting process in the Legal Subcommittee used to be extremely slow and complex. In 1999, however, the working methods of the two Subcommittees were reformed and a more dynamic agenda setting procedure was established.[6] This coincided with the holding of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), which gave additional support to the establishment of such new mechanisms.

It was a productive coincidence that the European proposal of 1998 to improve the Registration Convention[7] met with this trend. The proposal was generally well received at that time. Not only the sheer number of co-sponsors – 20 States out of the then 61 Member States of COPUOS – but also the precisely and clearly drafted text led to a positive presentation. Basic disagreement, however, was voiced by the Russian Federation, which countered with a „holistic approach". In other words, single treaties should not be discussed individually, because of close links between the five United Nations treaties on outer space. Instead, all these treaties should be discussed, either in parallel or consecutively, and only then could changes or supplements be adopted. The European working paper in para. 10 had already acknowledged that, among other things, a clarification of the definition of the „launching State" in the Registration Convention would have an impact on the same definition in the Liability Convention and that a supplement to the Registration Convention in this respect should also expressly cover the definition of „launching State" wherever it appeared in other United Nations treaties on outer space. It is important to note that the Russian Federation did not voice any objections to the objectives of the European proposal, but differed only on matters of methodology. Since it was not possible to reach an agreement in the Legal Subcommittee (in addition to the Russian resistance, the United States had at that time not yet concluded their internal evaluation of the proposal), the discussion on the European proposal was taken up again in the session of the main Committee in June 1998, „with a view to possibly reaching consensus" as had been recommended by the Legal Subcommittee.[8]

Building on this mandate, Germany led the negotiations at the main Committee meeting in June 1998. It became clear very quickly, however, that neither Russia nor the United States would accept the European proposal as it stood. In addition to the Russian concern with considering any single treaty in isolation, the United States was unable to agree on a new agenda item which would or could lead to an official interpretation or amendment of an international treaty. In order to achieve a compromise, and in place of the entire European package of proposals on measures to improve the Registration Convention, the question of the adequacy of the concept of „launching State" was singled out as an issue on which agreement might be reached. Further discussion on the other points (new elements of information for notification and incorporation of relevant parts of the Principles on the Use of Nuclear Power Sources in outer Space) was postponed.

Having received the support of Russia, the European States had to go through intensive negotiations with the United States before a final agreement could be reached. While Europe proposed an immediate decision on a new agenda item

[6] See *Volker Liebig/Kai-Uwe Schrogl*, Space Applications and Policies for the New Century, Frankfurt/Main (Peter Lang) 2000, 168-175.

[7] See *Marietta Benkö/Kai-Uwe Schrogl*, The UN Committee on the Peaceful Uses of Outer Space: Introducing the Agenda Item „Review of the Status of the Five Legal Instruments Governing Outer Space" and Other Recent Developments, in: ZLW (47,4) 1998, 525-530, the text of the proposal is reprinted at 534-538.

[8] See the Report of the Legal Subcommittee on the work of its thirty-seventh session (23-31 March 1998), UN Doc. A/AC.105/698 of 6 April 1998, para.72.

with a three-year work plan (containing Analysis of the present situation, Consequences for existing space law and Recommendations), the United States was only ready to accept that UNCOPUOS would invite presentations on new launch systems and ventures, to be given in both its Scientific and Technical Subcommittee and its Legal Subcommittee in 2000. In addition to committing itself to participate in inter-sessional consultations before the 1999 session of the Legal Subcommittee, with a view to possibly reaching consensus at the Legal Subcommittee session on the introduction of a new agenda item in the Subcommittee starting in 2000/2001. The German government was asked to host these inter-sessional consultations.

The Report of UNCOPUOS at its 1998 session reflected this compromise with the following wording:

„150. Some delegations noted that there was a need to consider the adequacy of the concept of the „launching State" as contained in the Registration Convention and the Liability Convention. They proposed that the Legal Subcommittee should consider this topic beginning in 2000 under a three-year workplan in a working group.

151. The view was expressed that more analysis in this area was required before agreement could be reached on a new item for the Legal Subcommittee dealing with this matter.

152. The Committee noted that inter-sessional consultations among interested delegations before the Legal Subcommittee session in 1999 would be welcome in order to seek a consensus on this matter.

153. The Committee agreed that the Scientific and Technical Subcommittee and the Legal Subcommittee would invite special presentations on new launch systems and ventures at their sessions in 2000 with a view to attaining a better understanding of these launch activities."[9]

It is not often that UNCOPUOS agrees to hold inter-sessional consultations on new agenda items, and this case demonstrated the sincere determination of the interested States to find a positive conclusion for that question. Following the request by UNCOPUOS, Germany hosted the inter-sessional consultations, which took place on 9 December 1998 in Bonn. The outcome of these consultations perfectly matched the expectations, since an agreement was reached on the scope and content of a three-year work plan[10], which was informally discussed at the Legal Subcommittee and formally adopted at the session of UNCOPUOS in 1999. The respective part of the UNCOPUOS Report reads:

„114. The Committee agreed that a new item entitled „Review of the concept of the ‚launching State'" should be included in the agenda of the Legal Subcommittee. The item would be considered by a working group during a three-year period beginning in the year 2000 in accordance with the following schedule of work:

2000 Special presentations on new launch systems and ventures

2001 Review of the concept of the "launching State" as contained in the Convention on International Liability for Damage Caused by Space Objects (Liability Convention) and the Convention on Registration of Objects Launched into Outer Space (Registration Convention) as applied by States and international organizations

2002 Review of measures to increase adherence to and promote the full application of the Convention on International Liability for Damage Caused by Space Objects and the Convention on Registration of Objects Launched into Outer Space."[11]

With this agreement, the Legal Subcommittee was ready to take up a new legal problem for the first time since the 1980s. The working group accepted that

[9] Report of the Committee on the Peaceful Uses of Outer Space, UN Doc. A/53/20 (1998), part II.D.4 (a).

[10] Report on the inter-sessional consultations on the concept of the „launching State", UN Doc. A/AC.105/C.2/L.217 of 1 March 1999.

[11] Report of the Committee on the Peaceful Uses of Outer Space, UN Doc. A/54/20 (1999), part II.C.4(b).

challenge and aimed from the beginning at working in a concentrated manner on the legal concept of the „launching State".

3. Questions regarding the application of the legal concept of the „launching State"

Since the Liability Convention entered into force in 1972, a number of trends in space activities have created new issues of interpretation under the Convention. One such trend is a continuing increase in the number of countries that carry out launch activities. In 1972, the vast majority of launches were carried out by the two major space powers: the United States and the Soviet Union. This is no longer the case. International cooperation in space activities is also increasing, with examples like the International Space Station, involving resource-sharing and technological cooperation between 16 countries and manned by international teams of space explorers. Involvement of the private sector in launch activities is also continually increasing, and some launches are now carried out by multinational private enterprises, like the French-Russian „Starsem" marketing partnership, the German-Russian „Eurockot" commercial launch service provider, and SeaLaunch. A final trend, of course, is a continuous development of new and improved space technologies.

This section outlines some questions that have been raised by various governments and commentators[12] regarding application of the concept of the „launching State". In addition, it includes examples of state practice that demonstrate how some of these issues are being addressed by national authorities.

3.1 Issues relating to territories and facilities

To what extent is a country liable when that country participates in the launch „only" by making its territory available?

Under the Liability Convention, all the „launching States" for a particular space object are jointly and severally liable. There is no explicit distinction between States procuring the launch of a space object and States from whose territories and facilities a space object is launched.

In other words, the Convention offers a high degree of protection to victims of damage. The classification as „launching States" of States from whose territories and facilities a space object is launched – which may have limited control over the space object and may not be at fault for damage in any way – is clearly designed to offer an additional level of protection to the victim.

In practice, countries that participate in launches only by making their territories or facilities available normally conclude agreements under Article V(2) of the Liability Convention, which states: „The participants in a joint launching may conclude agreements regarding the apportioning among themselves of the financial obligation in respect of which they are jointly and severally liable." However, „Such agreements shall be without prejudice to the right of a State sustaining damage to seek the entire compensation due under this Convention from any or all of the „launching States" which are jointly and severally liable." For example, China's practice with respect to launches from Chinese territory is to conclude agreements limiting its liability, as between the various „launching States", to the point at which the payload is placed correctly into the proper orbit. Thereafter, the State with jurisdiction and control over the space object must pay any damage that the „launching States" are liable for under the Liability Convention.

This is an important issue and possible pitfall for developing countries making their territories available for launches. But it is also a safeguard for technologically appropriate, careful and responsible conduct of launching activities. Under the Liability Convention, countries making their territory available for a launch are jointly and severally liable under the Liability Convention for the entire value of any

[12] See supra footnotes 3 and 4.

damage caused by the space object for which they are a „launching State". It is therefore important for these countries to ensure they are protected – as between the „launching States" – through the negotiation of agreements under article V(2) of the Liability Convention.

Launches from international territory

How does the Liability Convention address launches from international territory? It has been reasoned that launches from international territory (like launches by SeaLaunch from the high seas) create a lacuna in application of the Liability Convention. The State from whose territory a space object is launched may often be the „launching State" that can be identified most easily and objectively, and the only one that cannot be freely chosen by a private entity carrying out a launch. In the case of launches from international territory, like the high seas, the launch is not taking place from the territory of any State, which may result in the victim's State being unable to identify any „launching State" from which to claim damages under the Liability Convention.

A similar problem might be the adoption of flags of convenience. The Liability Convention provides for the liability of „launching States". One way for „launching States" to limit their liability is to establish a system to review the safety of launches before they are licensed by the national authorities. In fact, ensuring the safety of space activities is an important policy behind most national space laws.[13] If private entities carrying out a launch can choose their „launching States", this would result not only in difficulties with claiming liability for any damage, but might also result in less stringent safety rules being applied to the launch in the first place, making accidents more likely.

On the other hand, it is worth noting that many space launch licensing regimes require authorization for certain launches outside national territory in which the country's nationals are involved. For instance, the United States requires a license for launches and related activities by (a) individuals who are citizens of the United States and (b) entities organized or existing under the laws of the United States or a [U.S.] state, and (c) entities organized or existing under the laws of a foreign country if the controlling interest (as defined by the Secretary of Transportation) is held by an individual falling under categories (a) or (b). For activities outside the territory of any country, a license is required for entities in category (c) unless the United States Government and the Government of a foreign country agree that the foreign country has jurisdiction over the launch.[14] Under this provision, the United States requires a launch license for launches by SeaLaunch, in which Boeing, a U.S. company, participates.

It should also be noted that the United States law and similar launch licensing regimes that are in place in other countries like Australia, Japan, Russia, South Africa, Ukraine and the United Kingdom, require licensees to obtain third-party insurance and/or demonstrate their ability to pay potential claims by third parties („financial responsibility"). Under some laws, this insurance or financial responsibility may be required to cover „maximum forseeable loss", or should be appropriate from the viewpoint of potential victims.[15]

Launches from international territory mean there is no State from whose territory the space object is launched. In addition, entities launching from vessels on the high seas may choose the flag state for their launch platform. However, in practice and at present, potential victims are given some protection by authorities applying national insurance and safety requirements to launches by their nationals from international territory.

What type or level of property interest should a State have in a „facility" before it

[13] Review of the concept of the „launching State" - Report of the Secretariat, UN Doc. A/AC.105/768 of 21 January 2002, Section E, paras. 21-23.

[14] 49 United States Code, section 70104.

[15] Review of the concept of the „launching State" - Report of the Secretariat, UN Doc.A/AC.105/768 of 21 January 2002, Section F, paras. 24-26.

can become a „launching State" under the Liability Convention?

Unlike the State from whose territory a space object is launched, the State or States from whose facility a space object is launched may not be so easy to identify. For instance, what about a State that has (or whose national has) financed the building of a space launch facility, or that might even have taken possession of the facility after default by the original owner?

The authors are not aware of any simple answer to this question – it seems like a judgement call. The issues are similar to those concerning which States qualify as States that have procured the launch of a space object. Limiting the number of „launching States" will mean there are fewer States for the victim's State to turn to for compensation. Increasing the number of „launching States" increases the number of States that must protect themselves from possible liability by enacting insurance and safety review regulations, which may be duplicative and costly both for Governments and owners of launch facilities. Again, a State that is at risk of being liable as a launching State because of an interest in a space launch facility, may wish to protect itself from liability – as between the launching States – by concluding agreements under article V(2) of the Liability Convention.

Launches by aircraft

Launches by aircraft – like the U.S. Pegasus launcher, which has been operational since 1990 – may create some questions of interpretation. The main question is at what point the launch takes place.

Under Article 1 of the Chicago Convention on International Civil Aviation, a State has complete and exclusive sovereignty over the airspace above its territory. The question remains whether this complete sovereignty would qualify airspace above a States territory as „territory" under the Registration and Liability Conventions. A further complication would be introduced by the fact that separation between the aircraft and the Pegasus launcher normally takes place over the ocean, in most cases probably outside the territorial sea of the country concerned. If „launch" is defined as separation between the aircraft and the satellite, then it may be impossible to identify a State from whose territory a space object is launched.

If one determines the launch to take place when the launch vehicle takes off, then it will be possible for a potential victim to identify a national territory from which the space object is launched.

Where is the point that a „launch" by an aircraft takes place is also a question under the Registration Convention. The few countries that have included the location of a Pegasus launch in the information provided to the Secretary-General under the Registration Convention have indicated that the launch occurred from a point on dry land, rather than in the air.[16] In other words, these registrations would consider the airplane carrier to be just another part of the launch vehicle.

It might also be appropriate to consider an analagous situation: the launch of satellites by another reusable launch vehicle, the United States Space Shuttle. The satellites are deployed at some point while the Space Shuttle is in orbit, and remain in orbit after the Shuttle returns to Earth. The date of launches by the Space Shuttle is normally registered with the United Nations as the take-off date of the Space Shuttle, although practice is not completely uniform. In the case of the launch by the Argentinian satellite SAC-A by Space Shuttle Endeavour, the date of launch was listed by Argentina as the date of separation between the space object and the Space Shuttle.[17]

3.2 States procuring the launch of a space object

Under the Liability and Registration Conventions, a State „procuring the launch of a space object" is a „launching State". Perhaps one of the most difficult issues

[16] UN Doc. A/AC.105/INF/397 of 8 March 1993, UN Doc. ST/SG/SER.E/317 of 15 January 1997, UN Doc. ST/SG/SER.E/326 of 20 October 1997.
[17] UN Doc. ST/SG/SER.E/351 of 1 February 1999.

concerning the „launching State" is determining which countries fall in to the category of States procuring a launch.

One difficulty that has been raised is a difference between the English and Russian translations of the word to „procure". In English, the word „procure" indicates that the State paid for or obtained some benefit from the launch. On the other hand, the official translation for „procures" in the Russian version of the Registration and Liability Conventions, *organizyet*, indicates that the State has organized the launch.[18]

One major concern is the sheer number of countries that may now be involved with a launch and could potentially fall within the category of procurers of a launch. This means that a lot of countries have to analyse whether they may be held liable as a „launching State" and, if they may, take steps to limit their liability or ensure that it can be paid.

For instance, discussions in the Legal Subcommittee considered the typical „delivery in orbit" arrangement, in which the satellite builder, the launch service provider and the satellite operator may each come from different countries. In fact, each may themselves involve various different countries.[19]

One approach would be the inclusive approach. In order to give fullest possible protection to potential victims, one could interpret procurers of a launch broadly and include a large number of countries as „launching States". However, there are costs to this approach. First, business may be faced with a burden of regulation, or „red-tape-costs", in several States for the launch of a single space object. Second, in order to cover potential international liability, each State procuring the launch might set insurance requirements for the entity carrying out the launch. This may be problematic in the case of a procuring State, since this country may have limited access to information on the launch technology (e.g. because of technology transfer regulations) and may therefore find it difficult to quantify reasonable risks. It may also see little benefit from encouraging launch activities and may have limited ability to supervise the launch. In order to protect themselves in light of the limited information available to them, these States may set insurance requirements that are unreasonably high and burdensome on the launch service provider.[20]

Which States are procurers of a launch is again probably a matter of judgement. As mentioned, an inclusive approach favours potential victims but may result in real costs to Government and launch service providers. One potential approach is to consider ways to streamline licensing procedures for launches that may involve a number of procuring States. The broader possibility of harmonizing voluntary practices under the Conventions is addressed in Section 5 of this paper.

3.3 Fault

For damage caused elsewhere than on the surface of the Earth, the „launching State" – following Article III of the Liability Convention - is liable only if the damage is due to its fault or the fault of persons for whom it is responsible. However, the Convention does not elaborate further on the requirements for „fault". A fault determination in space is certainly more complicated than that on the roadways, where vehicles are controlled by human beings and are required to follow a set of predetermined traffic rules.

With a rising amount of space activities, the elaboration of space traffic management rules in a time perspective of ten to twenty years has therefore been identified as a necessity to answer this question, and address a number of related issues. It was more than a coincidence that the annual International Institute of Space Law/European Centre for Space Law Symposium during the Legal Subcommittee

[18] This point was made by the Russian delegation during deliberations in the working group.

[19] Review of the Concept of the „launching State" - Report of the Secretariat, UN Doc. A/AC.105/768 of 21 January 2002, para. 48.

[20] Review of the Concept of the „launching State" - Report of the Secretariat, UN Doc. A/AC.105/768 of 21 January 2002, para. 49.

session in the year 2002 (when the Working Group on the „launching State" finalized its work) dealt with „Prospects for Space Traffic Management".[21] In addition, the International Academy of Astronautics established a study group on this issue in the year 2001.

3.4 Reusable launch vehicles

Are multiple launches of a reusable launch vehicle considered as separate launches under the Liability and Registration Conventions? Some state practice exists on this issue under the Registration Convention. Separate missions of the United States Space Shuttle are registered separately with the United Nations.

3.5 Jurisdiction and control

Under Principle 2(1) of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space[22], the „launching State" is defined as a 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. While an integral part of the „launching State" definition in the Principles on the Use of Nuclear Power Sources in Outer Space, „jurisdiction and control" is not mentioned explicitly in the Liability and Registration Conventions' definition of a „launching State". To what extent is it relevant?

Lack of jurisdiction and control over a space object obviously makes it difficult to prevent the space object causing damage. This may be especially relevant to liability for damage elsewhere than on the surface of the Earth, which is fault-based and not absolute. Of course, it is still possible for a State without jurisdiction or control over a space object at the time that the space object causes damage to be partially at fault for the damage, for instance if damage is caused by a preexisting design or orbit failure.

The fact that jurisdiction and control is not an explicit requirement for „launching States" under the Liability Convention raises the possibility of States that procured a launch being absolutely liable for damage that they could not prevent. This is perhaps similar to the situation of States from whose territory a space object is launched. These „launching States" may seek to negotiate agreements limiting their liability – as between the „launching States" – under Article V(2) of the Liability Convention.

One of the most commonly discussed issues is what happens when ownership or control over satellites is transferred from one State to another. In particular, must a State „procuring the launch of a space object" have been an original „launching State", or can it become a „launching State" at later point?

On this issue, it is worth noting an example of practice under the Registration Convention. Satellite BSB-1A was originally registered with the United Nations by the United Kingdom following its launch from the United States in 1989.[23] Subsequently, the satellite was listed as „Sirius 1" on the Swedish register of objects launched into outer space, which was conveyed to the United Nations in UN Doc. ST/SG/SER.E/352 of 19 February 1999, following purchase of the satellite in orbit in 1996. This seems to indicate that Sweden considered itself to be a „launching State" for this satellite under the Registration Convention, since the „State of registry", which registers the satellite with the United Nations, must be a „launching State" under the Convention. The authors are not aware of any Swedish involvement with this satellite at the time it was launched.

Another, perhaps better known, case of a change in the State of registry for satellites is that of the transfer of satellites AsiaSat-1, AsiaSat-2, APSTAR-I and APSTAR-IA from

[21] The Proceedings of this Symposium, which took place on 2 April 2002 are contained in UN Doc. A/AC.105/C.2/2002/CRP.7 of 4 April 2002. For early ideas on this issue see *Lubos Perek*, Traffic Rules for Outer Space, IISL-82-IISL-09; for recent discussions see *American Institute of Aeronautics and Astronautics*, International Space Cooperation: Addressing Challenges of the New Millennium, March 2001, 7-14; and for specific aspects related to air traffic see *U.S. Federal Aviation Administration*, Concept of Operations for Commercial Space Transportation in the National Airspace System, 14 January 2000.

[22] UNGA Res. 47/68, adopted on 14 December 1992.

[23] UN Doc. ST/SG/SER.E/219 of 24 April 1990.

the United Kingdom to the Hong Kong Special Administrative Region of China on 1 July, 1997.[24] This was the date of the transfer of power in Hong Kong from the U.K. to China, and the transfer of the State of registry must have been a result of this transfer of power. This is another example of a transfer in the State of registry of a satellite. On the other hand, China clearly *was* an original launching State in this case, since the satellites in question were launched from Xichang launch center in south-west China.

It is quite possible that none of the original „launching States" for a space object may have jurisdiction and control over the space object. If a „launching State" under the Liability Convention is required to be an original „launching State", this could mean that none of the States subject to international liability under the Liability Convention have the ability to prevent damage being caused by the space object in question. This situation could be avoided, however, if a „launching State" is not required to be an original „launching State". A possible argument for this approach would be that the State in question has obtained some benefit from the launch, even though it was not involved when the launch took place.

3.6 International organizations

The Registration and Liability Conventions provide for the possibility of international organizations to declare their acceptance of the rights and obligations provided for in the Conventions. For this to be effective, a majority of the States Members of the organization in question must be States Parties to the Convention in question as well as the Outer Space Treaty.

If the international organization has not declared its acceptance of the rights and obligations in the Convention, or if a majority of its members are not Parties to the Outer Space Treaty and the Convention in question, how are the „launching States" determined? Would all the Member States of that organization be „launching States"?

On a side note, some international organizations have recently privatized. For instance, Eutelsat (which declared its acceptance of the rights and obligations in the Liability Convention) is now a private company, which would presumably mean its declaration of acceptance is no longer effective.

4. The deliberations in the Legal Subcommittee

„Review of the concept of the ‚launching State' was considered by the Legal Subcommittee under the three-year work plan referred to in section 2 above. In the Legal Subcommittee, a Working Group, open to all 64 Member States of UNCOPUOS, was set up during each year that considered the agenda item on „Review of the concept of the ‚launching State'".[25]

In the year 2000, presentations on new launch systems and ventures took place not only in the Legal Subcommittee, but were also included as an item on the agenda of the Scientific and Technical Subcommittee. These presentations helped delegations to obtain practical, up-to-date information from a number of perpectives.[26] Governments gave presentations on national launch service programmes, launch vehicles that are currently in use, as well as those that are under development. Representatives of international commercial ventures like Starsem and Eurockot also gave presentations to the Scientific and Technical Subcommittee and the Legal

[24] UN Doc. ST/SG/SER.E/333 of 3 April 1988 and UN Doc. ST/SG/SER.E/334 of 3 April 1998.

[25] The Reports of this Working Group are contained in the respective Reports of the Legal Subcommittee on the work of its thirty-ninth (2000), fortieth (2001) and forty-first sessions (2002), UN Docs. A/AC.105/738 of 20 April 2000, Annex II, A/AC.105/763 of 24 April 2001, Annex II and A/AC.105/787 of 19 April 2002, Annex IV.

[26] They are contained in UN Doc. A/AC.105/C.2/2000/CRP.8 of 30 March 2000 for the Scientific and Technical Subcommittee (with presentations by representatives from France, Germany, India, the Russian Federation and the United States) and in UN Doc. A/AC.105/C.2/2000/CRP.12 of 5 April 2000 for the Legal Subcommittee (with presentations by representatives from France, Germany, Japan, the Russian Federation and the United States).

Subcommittee. A few presentations outlined national laws and procedures for licensing launches into outer space, as well as questions that were being faced by national authorities in applying the „launching State" concept. Finally, the Working Group started to consider the scope of work during its three-year work plan. It was agreed that the Working Group should not aim at an authoritative interpretation of the concept of the „launching State" concept, in part because of views by some countries that such an interpretation was not necessary since both Conventions were functioning well, and in part because of procedural concerns that the Legal Subcommittee was not the appropriate body to amend or provide an official interpretation of the Liability and Registration Conventions.

During the second year of the work plan, in 2001, the Working Group reviewed how the concept of the „launching State" was being applied by States and international organizations. That year, various States and international organizations made presentations on their national space laws, or procedures for licensing launches into outer space.[27] The Working Group also considered – in more depth than in 2000 – some of the issues facing national authorities when applying the concept of the „launching State" in practice. The Working Group also had the benefit of a study by the Secretariat summarizing various national space laws,[28] as well as a compilation of national space laws and international agreements relevant to the concept of the „launching State".[29]

Finally, in 2002, the third year of the work plan, the Subcommittee reviewed measures to increase adherence to and promote the full application of the Registration and Liability Conventions. It had before it a report by the Secretariat, which had been prepared at the Subcommittee's request. The report contained a synthesis of state practice in applying the concept of the „launching State", which addressed subjects like state jurisdiction over space activities, ensuring the safety of space activities, third-party insurance and financial responsibility requirements, and cross-waivers of liability.[30] The document also summarized some of the issues that had been raised by States during the first two years of the work plan (see Section 3 above). Based on provisions of existing national space law, the final section of the document listed elements that could be included in national space legislation and licensing regimes.

5. The Conclusions of the Working Group and further perspectives on the future of the legal concept of the „launching State"

The final year of the work plan had the task of reviewing measures to increase adherence to the Liability and Registration Conventions and promote their full application. During this session, the Chairman presented the Working Group with draft conclusions.[31] The idea was to present the Working Group with some possible concrete actions that could be taken based on its review of the concept. The draft conclusions were developed by analysing the positions, goals and concerns that countries had expressed during the first two years of the work plan, in 2000 and 2001.

After considering the Chairman's proposal, the Working Group adopted an amended version as the Conclusions of the Working

[27] They are contained in UN Doc. A/AC.105/C.2/2001/CRP.10 of 11 April 2001 (with presentations by Australia, China, France, Sweden, the U.K., ESA and the International Law Association).
[28] Review of existing national space legislation illustrating how States are implementing, as appropriate, their responsibilities to authorize and provide continuing supervision of non-governmental entities in outer space – Note by the Secretariat, UN Doc. A/AC.105/C.2/L.224 of 22 January 2001.
[29] UN Doc. A/AC.105/C.2/2001/CRP.5 of 27 March 2001. Most of these texts can also be found on the web site of the UN Office for Outer Space Affairs at (http://www.oosa.unvienna.org/SpaceLaw/spacelaw.htm).

[30] Review of the Concept of the „launching State" - Report of the Secretariat, UN Doc. A/AC.105/768 of 21 January 2002.
[31] Draft Conclusions of the Working Group on agenda item 9, „Review of the concept of the ‚launching State'" – Proposal submitted by the Chairman, UN Doc. A/AC.105/C.2/C.2/L.234 of 26 March 2002.

Group. These Conclusions were then endorsed by the Legal Subcommittee.[32] They are reprinted in the Annex to this article.

The Conclusions – in addition to summarizing discussions during the three-year work plan – contain the following three main recommendations.

> First Recommendation (para. 10): *„The Working Group recommended that States conducting space activities consider steps to implement national laws to authorize and provide continuing supervision to activities of their nationals in outer space and implement their international obligations under the Liability Convention, the Registration Convention and other international agreements.(...)"*

As of April 2002, there were 82 States Party to the Liability Convention and 45 States Party to the Registration Convention. For the many States that are not party to either or both of these Conventions, the first step to increase adherence to and promote the full implementation of these Conventions would be to accede to them. These treaties do not only provide benefits to space powers. Liability of the „launching State" under the Liability Convention, or identification of space objects under the Registration Convention benefit spacefaring and non-spacefaring countries equally.

States that are Party to the United Nations treaties on outer space must, of course, comply with their international obligations under these treaties. In some countries, it might be necessary to enact some kind of implementing law. Among other things, „launching States" that are parties to the Registration Convention would have to set up a national registry under the Registration Convention and make provision for providing the required information to the United Nations.

The recommendation of the Working Group, more broadly, refers to national laws „to authorize and provide continuing supervision to activities of their nationals in outer space". Under article VI of the Outer Space Treaty, authorization and continuing supervision of the activities of non-governmental entities in outer space is the responsibility of the „appropriate State Party to the [Outer Space] Treaty". The recommendation of the Working Group is therefore close to the language in the Outer Space Treaty. However, the Working Group refers to authorization and continuing supervision by States of activities of their „nationals". This reflects current State practice, in that many national space laws cover both activities on national territory and activities by the State's nationals outside national territory.

The Working Group also listed four benefits that national space laws could provide to countries enacting them. First, the law can effect a country's jurisdiction and control over a space object. If a „launching State" lacks control over a space object, then it may be impossible for the State to prevent damage being caused by the object. The State may therefore be liable for damage caused by the space object yet unable to prevent the damage from occurring. There is therefore a benefit to States establishing jurisdiction and control over space objects launched by their nationals, as consistent with international law.

Second, national space laws may reduce the risk of launch accidents and other damage. Many national laws require launches to be reviewed for safety before they can be licensed by the government. By reducing the risk of launch accidents, safety reviews serve the public interest, and by helping to prevent damage from space objects, also help the „launching States" concerned avoid liability.

Thirdly, national space laws can establish insurance and financial responsibility requirements for launches, which help ensure the prompt payment of a full and

[32] Conclusions of the Working Group on agenda item 9, entitled „Review of the concept of the ‚launching State'" as contained in the Report of the Legal Subcommittee on its Forty-first session, held in Vienna from 2 to 12 April 2002, UN Doc. A/AC.105/787 of 19 April 2002, Annex IV, Appendix.

equitable measure of compensation to victims, a need expressed in the preamble to the Liability Convention.

Fourth, national space laws can provide mechanisms for governments that are internationally liable under the Liability Convention to receive indemnification from any non-governmental entities that caused the damage. The Liability Convention applies to States Parties; it is governments that are directly liable under the Convention. For this reason, it may benefit governments to ensure that they can receive this money back from any non-governmental entities that caused the damage.

Finally, the Working Group identified some practical sources of assistance to States seeking to develop national space laws. First, it made extensive reference to a proposal for "building blocks" of national space legislation, which was presented by the International Law Association during the course of the work plan.[33] Second, it made reference to the two documents prepared by the Secretariat, which had summarized provisions of existing national space legislation.[34] Third, the Working Group noted that the UN Office for Outer Space Affairs could serve as a resource for legal information and assistance.

> Second Recommendation (para. 14): *„The Working Group recommended, following common practice, that States consider the conclusion of agreements according to Article V, paragraph 2, of the Liability Convention for each stage of a mission with respect to joint launches or cooperation programmes."*

As mentioned earlier (see section 3.1 above), „launching States" – which may have varying degrees of participation in a launch – are jointly and severally liable for damage caused by the space object in question. In other words, States with limited participation in a space activity may be liable for the full amount of damage caused by that activity. The common solution adopted by these countries is to conclude agreements that specifically limit their liability, as between the „launching States".

> Third Recommendation (para. 18): *„The Working Group recommended the consideration of harmonizing voluntary practices that would provide useful guidance in a practical context to national bodies implementing the United Nations treaties on outer space."*

This recommendation addresses two issues. First, it addresses the concern that – because of an increase in international cooperation in space activities – there could be a large number of potential „launching States" for any particular space activity. This might mean that the countries involved protect themselves from liability by imposing confusing or duplicative safety, liability and/or financial responsibility requirements on the launch service provider.

Second, harmonized practices may provide some guidance in a practical context to national bodies that are responsible for implementing the United Nations treaties on outer space. Of course, individual national authorities or even groups of national authorities cannot determine authoritatively whether or not they are „launching States"; this is a question of international law. Adopting the practices of other States does have the effect, however, of consistency, avoiding countries arriving at different interpretations that may be confusing for the launch service provider. It should also be noted that while harmonized practices cannot authoritatively interpret the Liability and Registration Conventions, it may be possible for certain practices to *be used* to interpret these Conventions, for instance under article 38 of the Statute of the International Court of Justice or even article

[33] These „building blocks" have been worked out in the framework of „Project 2001"; see *Michael Gerhard/Kai-Uwe Schrogl*, Report of the „Project 2001" Working Group on National Space Legislation, in: *Karl-Heinz Böckstiegel* (ed.), „Project 2001" – Legal Framework for the Commercial Use of Outer Space, Cologne (Carl Heymanns) 2001, 529-564, here 556-557.

[34] UN Docs. A/AC.105/768 of 21 January 2002 and A/AC.105/C.2/L.224 of 22 January 2001.

31(3)(b) of the Vienna Convention on the Law of Treaties.[35]

At the end of its Conclusions, the Working Group encouraged States Parties to the Registration Convention to implement the Convention in a manner that will best assist the identification of space objects, ensure the United Nations Register of Objects Launched into Outer Space is as complete as possible, and avoid duplicate registrations.

The Working Group encouraged States Parties to the Liability Convention to implement the Convention in a manner that will best ensure the prompt payment under the terms of the Convention of a full and equitable measure of compensation to victims of damage caused by space objects.

These two paragraphs closely follow the wording in the Preambles to the respective Conventions (with the addition of the rather logical call for Parties to avoid duplicate registrations under the Registration Convention).

National authorities implementing the Conventions are not interpreting them under international law. Nevertheless, the approach taken by the Conclusions of the Working Group is consistent with the general rule for interpretation of a treaty on the international level: „in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in the light of its object and purpose".[36]

While the nature of space activities has changed greatly since the 1970s, when the Liability and Registration Conventions entered into force, the purpose of the Conventions has not. Even though it may be difficult for carefully negotiated treaties like the Liability and Registration Conventions to keep up – at least explicitly – with rapid developments in a field like space, States Parties can keep the original purpose of these Conventions in mind when developing national laws and practices.

[35] Following the adoption of the Conclusions, the proposal was made to take the three Recommendations and make them the centerpiece of a UN General Assembly Resolution providing them the same status as e.g. the Remote Sensing Principles or the Space Benefits Declaration. This proposal did not find consensus and was transferred for further consideration to the session in 2003 but without recreating the Working Group nor with the mandate of re-drafting the Recommendations or the Conclusions as a whole. These Conclusions have found their final form in 2002.

[36] Article 31 („General rule of interpretation") of the Vienna Convention on the Law of Treaties of 1969.

Annex

Conclusions of the Working Group on agenda item 9, entitled „Review of the concept of the ‚launching State'" as contained in the Report of the Legal Subcommittee on its Forty-first session, held in Vienna from 2 to 12 April 2002, UN Doc. A/AC.105/787 of 19 April 2002, Annex IV, Appendix

1. The term "launching State" is an important concept in space law. It is based on article VII of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (the "Outer Space Treaty", General Assembly resolution 2222 (XXI), annex and formulated identically in article I (c) of the Convention on International Liability for Damage Caused by Space Objects (the "Liability Convention", resolution 2777 (XXVI), annex) and article I (a) of the Convention on Registration of Objects Launched into Outer Space (the "Registration Convention", resolution 3235 (XXIX), annex) as follows:

> "(c) The term 'launching State' means:
>
> "(i) A State which launches or procures the launching of a space object;
>
> "(ii) A State from whose territory or facility a space object is launched;"

It identifies inter alia those States which may be liable for damage caused by a space object and which would have to pay compensation in such a case. Furthermore, a launching State is responsible for registering a space object consistent with the Outer Space Treaty and the Registration Convention.

2. The Liability Convention entered into force in 1972, and the Registration Convention entered into force in 1976. Changes in space activity since that time include the continuous development of new technologies, an increase in the number of States carrying out space activities, an increase in international cooperation in the peaceful uses of outer space and an increase in space activities carried out by non-governmental entities.

3. Based on a proposal by certain European countries (A/AC.105/C.2/L.211/ Rev.1) and following intersessional consultations in Bonn on 9 December 1998 (A/AC.105/L.217), the Legal Subcommittee conducted a review of the concept of the launching State under a three-year work plan, during its sessions from 2000 to 2002. The Subcommittee established a Working Group to consider the issue, under the Chairmanship of Kai-Uwe Schrogl (Germany).

4. Under the three-year work plan, the Working Group considered the following issues, from the Legal

Subcommittee's thirty-ninth session, in 2000, to its forty-first session, in 2002:

2000	Special presentations on new launch systems and ventures
2001	Review of the concept of the "launching State" as contained in the Liability Convention and the Registration Convention as applied by States and international organizations
2002	Review of measures to increase adherence to and promote the full application of the Liability Convention and the Registration Convention

5. The Working Group noted that its conclusions did not constitute an authoritative interpretation of or proposed amendments to the Registration Convention or the Liability Convention.

6. The Working Group considered, following technical presentations at the thirty-seventh session of the Scientific and Technical Subcommittee, in 2000, new launch systems and ventures and other aspects of space activity that might raise questions of interpretation under the Liability Convention and the Registration Convention. The Working Group also examined existing State practice regarding the concept of the launching State, including the provisions of national space laws and international agreements. That illustrated how States were implementing their obligations under the Liability Convention, the Registration Convention and other international agreements and how States were addressing some issues of interpretation under those agreements in a practical context. Special presentations at the Scientific and Technical Subcommittee were compiled and distributed as conference room paper A/AC.105/C.2/2000/CRP.8. Presentations at the Legal Subcommittee were compiled and distributed as conference room papers A/AC.105/C.2/2000/CRP.12, A/AC.105/C.2/ 2001/CRP.5 and A/AC.105/C.2/2001/ CRP.10.

7. In 2002, the final year of the work plan, the Working Group reviewed measures to increase adherence to and promote the full application of the Liability Convention and the Registration Convention. The findings and recommendations of the Working Group are set out below.

8. The Working Group noted that, as of April 2002, the Liability Convention had become binding for 82 States and the Registration Convention had become binding for only 44 States; in addition, 97 States were parties to the Outer Space Treaty. The Working Group noted with concern the relatively low level of participation in those treaties, although almost all spacefaring nations had ratified or implemented the instruments and some international intergovernmental organizations had declared their acceptance of the rights and obligations provided for in the conventions. The Working Group expressed the hope that Member States that had not yet done so would consider binding themselves to those conventions. The Working Group stressed that the conventions offered important benefits to all countries, not only to spacefaring countries, in particular by establishing that a launching State was absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight and by assisting in the identification of space objects. However, those provisions were only applicable to States that adhered to the relevant instruments.

9. The Working Group noted that some questions of interpretation under the Liability Convention and the Registration Convention were being addressed on a regular basis by national space regulatory bodies and intergovernmental organizations that had declared their acceptance of the rights and obligations provided for in the Liability Convention and the Registration Convention. Arrangements such as launch marketing ventures and international financing of space objects, for instance, required the participating States to analyse whether they were States "procuring the launch" of the space object in question. National authorities were interpreting "activities in outer space" to determine which activities of non-governmental entities they would authorize and supervise under article VI of the Outer Space Treaty.

10. The Working Group recommended that States conducting space activities consider steps to implement national laws to authorize and provide continuing supervision of the activities of their nationals in outer space and to implement their international obligations under the Liability Convention, the Registration Convention and other international agreements. The Working Group noted that the implementation of national legal provisions on space could benefit the country concerned in ways such as: (a) effecting the country's jurisdiction and control over the space object; (b) reducing the risk of launch accidents and other damage in connection with space activities; (c) providing fast and effective compensation for such damage; and (d) providing mechanisms for a government that is internationally liable under the Liability Convention to receive indemnification from any non-governmental entities that caused the damage. The Working Group noted that the Office for Outer Space Affairs could serve as a resource for legal information and assistance for countries seeking to develop national space laws, in particular developing countries.

11. The Working Group took note of a proposal from the representative of the International Law Association for elements, or "building blocks", for national space legislation, including: (a) authorization of space activities (interpretation of the term "space activities"; application to activities with regard to territory and legal or natural persons; observation of principles in the United Nations treaties on outer space, such as preventing harmful contamination; sharing the financial risk of liability between governmental and non-governmental actors; and observation of the obligation concerning cooperation and mutual assistance); (b) supervision of space activities (through periodical information either provided by the owner of an authorization or collected by a public authority concerning the terms of the authorization; through sanctions in case of non-observance of the terms of the authorization; and through revocation or suspension of the authorization in the case of non-observance of its terms); (c) registration of space objects (interpretation of the concept of space object; setting up a national registry; determination of the supervisory authority; content of entries in the registry (the five items of information to be provided under article IV, paragraph 1, of the Registration Convention); additional information such as the mass of the space object; a safety assessment when a nuclear power source is involved; registration of non-functional objects and objects that have re-entered the Earth's atmosphere; possibility of changes to the registered information; and access to the registry); (d) indemnification regulation (implementation of a right of recourse if the (launching) State has paid indemnification to another State under article VII of the Outer Space Treaty and under the Liability Convention, even if the damage has been caused solely by a non-governmental entity; and indemnification limited to a certain fixed sum or to the

insured sum, beyond which the State can guarantee payment (problem of fair competition)); and (e) additional regulations, with all points mentioned linked to the problem of "fair competition" (regulation of insurance, patent law and international property issues); and export control regulation (because of the ongoing discussions of the International Institute for the Unification of Private Law (Unidroit) on international interests in space property, special regulations on this issue should not be implemented on a national basis at the moment). The Working Group viewed the proposal as identifying useful elements for States to consider in developing national space legislation.

12. The Working Group noted that provisions of existing national space laws could also serve as a useful resource for countries seeking to develop national space laws and that the following documents, which had been considered by the Working Group during the course of its work, had provided a review of national space law provisions:

(a) Review of existing national space legislation illustrating how States are implementing, as appropriate, their responsibilities to authorize and provide continuing supervision of non-governmental entities in outer space (A/AC.105/C.2/L.224);

(b) Report by the Secretariat on the review of the concept of the "launching State" (A/AC.105/768).

13. The Working Group noted that several States could be jointly and severally liable for damage resulting from an overall space activity, notwithstanding their respective limited participation in that space activity.

14. The Working Group recommended, following common practice, that States consider the conclusion of agreements in accordance with article V, paragraph 2, of the Liability Convention for each stage of a mission with respect to joint launches or cooperation programmes.

15. The Working Group noted proposals for entering into such agreements in cases, among others, in which one State participated in the launch only by making its territory or facility available. In those cases, the Working Group noted that States providing launch services sometimes concluded agreements limiting their liability for damage caused by a space object, as between the launching States, to the point at which the payload was placed successfully into the proper orbit.

16. The Working Group noted that national space laws had elements in common and that, in some cases, governments and non-governmental entities were adopting similar practices under the Liability Convention and the Registration Convention.

17. The Working Group noted that it was common for several States to be involved in a single launch. Those States might consider themselves at risk of being liable as "launching States", including "States procuring the launch". Therefore, the third-party liability insurance requirements of several States might be imposed on any particular stage of the launch, with the highest requirements prevailing.

18. The Working Group recommended the consideration of harmonizing voluntary practices that would provide useful guidance in a practical context to national bodies implementing the United Nations treaties on outer space. Agreements or informal practices to streamline the separate space licensing procedures of various States involved in a launch might reduce insurance costs and regulatory burdens for private industry and regulatory costs for governments. For instance, it might be valuable to consider ways of reducing the number of countries that set duplicate third-party insurance requirements for a particular launch or launch stage. States could also consider voluntary harmonized practices regarding on-orbit transfer of ownership of spacecraft. In general, such practices would increase the consistency and predictability of national space laws and help avoid lacunae in the implementation of the treaties. The Working Group noted that voluntary harmonized practices could be considered on a bilateral or multilateral basis, or on a global basis through the United Nations.

19. The Working Group noted that not all space objects launched into outer space had been registered in the United Nations Register of Objects Launched into Outer Space.

20. The Working Group encouraged States parties to the Registration Convention and intergovernmental organizations that had declared their acceptance of the rights and obligations provided for in that Convention to implement the Convention in a manner that would best assist the identification of space objects, ensure the United Nations Register of Objects Launched into Outer Space was as complete as possible, and avoid duplicate registrations.

21. The Working Group encouraged States parties to the Liability Convention and intergovernmental organizations that had declared their acceptance of the rights and obligations provided for in that Convention to implement the Convention in a manner that would best ensure the prompt payment under the terms of the Convention of a full and equitable measure of compensation to victims of damage caused by space objects.