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Interactive Presentations

On-Orbit Transfer of Satellites between States

Legal Issues – with Special Emphasis on Liability and Registration

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Abstract

Space has become highly commercialized and satellites are treated as transferable goods, even while they are on orbit. Although the existing international space law regime allows such transfers, it also raises some serious questions especially with regards to registration and liability. The insufficiency of the present legal framework is rooted in the cause that the space treaties were drafted decades ago, and it was not possible to contemplate on-orbit transfers at that time. Under present regime of space law, in case of an inter-State on-orbit transfer of satellite, there may be a State having de jure jurisdiction and control over a space object, for which it is liable, while another State has de facto control over the space object and is responsible, as it is that State's national activity. In this context, finding a pragmatic solution, while keeping in mind the interests of the victims, the transferor and the transferee, is imperative. Consequently, it is important to analyze whether the current framework of law is competent to deal with the issue, or whether the existing law needs to be amended. Because on-orbit transfers are happening now and will increase in the future, the topic is an extremely significant one and addresses a practical problem.

Today, space has become a part of our lives. Our everyday life is dependent on satellite services such as telecommunications, navigation, broadcasting and weather forecasting. An outcome of commercialization and privatization of space activities¹ is that satellites, which were once regarded as symbols of national prestige, are now being bought and sold like any other commodity, even while they are on-orbit. Laws governing outer space, however, create

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1 See K. Tatsuzawa, "The Regulation of Commercial Space Activities by the Non-Governmental Entities in Space Law", in *Proceedings of the Thirty-first Colloquium on the Law of Outer Space* (Washington D.C., USA: American Institute of Aeronautics and Astronautics, 1988) 341 at 341 (commercialisation means profit-making transfer of goods and services and privatisation means transition of government's owned activities to purely private initiative).

serious legal difficulties with such transfers. These problems relate to responsibility, liability and registration under international space law. In addition to creating confusions, the existing laws have the effect of restricting and at times even prohibiting, transfer of satellites. In the light of the problems posed by laws governing the on-orbit transfer of satellites, especially laws at the international level, it is imperative to ponder whether the existing legal regime needs to be modified.

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 1967² states that outer space should be free for use and exploration, and that such use and exploration should be for the “benefit of all countries.”³ The provision cannot be interpreted as a ban of commercial use of outer space, and in fact, the word ‘use’ itself implies commercial exploitation.⁴ The space treaties do not explicitly mention that commercial space activities are permitted.⁵ According to the well-known judgment of the Permanent Court of International Justice in the *Lotus Case*, however, any activity that is not expressly prohibited in international law is permitted. Hence, as commercial space activities are not prohibited, they are considered lawful.⁶ Besides complicating the existing problems, commercialisation has given rise new legal issues in space law, one of them being on-orbit transfer of satellites.⁷

Generally, satellites are purchased in the pre-construction stage. One of the reasons for entering into contracts in the pre-construction and pre-launch stages is that a particular orbital position is often closely linked with the functioning and commercial value of satellite. It is expensive and, generally, commercially non-viable to re-locate a satellite. Also, payloads of satellites are custom-made to serve a particular purpose and may be efficient in performing only those functions.

2 *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, 27th January 1967, 18 UST 2410, 6 ILM 386 (entered into force 10 October, 1967) [*Outer Space Treaty*].

3 *Outer Space Treaty*, *supra* note 2, Article 1.

4 K.H. Bockstiegel, “Legal Implications of Space Activities” in *Proceedings of the Twenty-Fourth Colloquium on the Law of Outer Space* (Washington D.C., USA: American Institute of Aeronautics and Astronautics, 1981) 1 at 6.

5 See generally P.D. Nescgos, “International and Domestic Law Applicable to Commercial Launch Vehicle Transportation” in *Proceedings of the Twenty-Seventh Colloquium on the Law of Outer Space* (Washington D.C., USA: American Institute of Aeronautics and Astronautics, 1984) 98.

6 See *Lotus Case (France v. Turkey)* (1927) PCIJ (Ser A) No 9 at 18.

7 See M. Trögeler, “Practice of States and international organizations in registering the transfer of ownership of space objects” (Paper delivered at the IISL/ECSL Symposium on “Transfer of ownership of space objects: issues of responsibility, liability and registration”, 19 March 2012) [Trögeler “*Practice of States*”]; UNCOPUOS LSC, 51st Sess, 840th Mtg. (2012) at 6.

Purchase and sale of operational satellites after they have been launched on-orbit are slowly becoming popular. In this case, the buyer purchases an already operational satellite, which is on orbit, and which meets buyer's requirements. Undeniably, on-orbit transfer of satellites are possible in certain circumstances only. These include when the successor intends to provide same services, such as telecommunications, as the previous operator, or when the successor intends to use the same orbital position and frequencies for other services. Other than sale, entities can enter into contracts for transfer of a lesser degree of operation and control of lesser degree. On-orbit satellite transfers are generally sale, leasing of operation and control and possession by secured creditor on default.

Importance of On-Orbit Transfers

On-orbit satellite transfers have certain distinct advantages. Only a few States have developed the technology and facilities to launch and manufacture satellites,⁸ whereas every State needs access to services offered by satellites. In addition, satellite industry is a profitable one. These two factors indicate that there are many entities willing to enter into the satellite operating business. It is prudent for new entrants to purchase or lease satellites already launched and functional. It saves a lot of legal and logistical hassle. The buyers do not need to acquire launch licenses and do not need to comply with other legal requirements necessary for launch under national laws. Furthermore, the buyers do not need to wait for operation till launch is accomplished, do not need to enter into multiple contracts like satellite procurement and launch services contracts, and can avoid the risk of launch failure. Similar advantages ensue in the case of lease or other kinds of transfer of operation and control.

For existing operators too, on orbit satellite transfer helps in dealing with sudden demand for satellite services.⁹ Pre-construction arrangement takes 2-3 years to fructify¹⁰ and then, it may be found that the launch vehicle, which is scheduled for the launch, has had recent failures. This may necessitate a

8 Greg Berlocher, "Satellite Manufacturing: A New Landscape", *Satellite Today* Sept 1, 2007, available at http://www.satellitetoday.com/via/features/Satellite-Manufacturing-A-New-Landscape_18882.html (The satellite manufacturing market is dominated by six major manufacturers – Boeing Satellite Systems, Lockheed Martin, Orbital Sciences, and Space Systems/Loral in the United States and Thales Alenia Space and EADS Astrium in Europe, each focusing on a particular niche area of the market).

9 See Kay-Uwe Horl and Kamlesh Gungaphul, "Problems related to 'change of ownership' with respect to registration – The Industry View", presented in *Project 2001 Plus Workshop "Current Issues in the Registration of Space Objects"*, 20-21 January 2005, Berlin, Germany [*Problems related*].

10 See generally, Madhumati D S, "Beam us up, Bangalore", *The Hindu*, April 20, 2013.

search for another launch vehicle, but the existing launch vehicles may be too far booked in the future, which will delay the launch of satellite.¹¹ In addition, there is always a probability of failure of launch. These and other contingencies often arise in the case of pre-construction contracts. Practice of on-orbit satellite transfers will bring in fungibility, which will definitely attract more capital and will be a boon to the space sector.

Lastly, it is difficult to find financiers for satellite operating ventures and to ascertain the market.¹² It is easier to arrange funds for purchasing the already existing satellites and to obtain insurance, as the financiers and insurers are certain about the market and about profitability of the venture. Iridium went bankrupt because it was unable to find enough subscribers. An operator may even get already existing subscribers in the case of on-orbit transfers.

Who Are Responsible and Liable after On-Orbit Transfers?

It is important to ascertain the liability and responsibility of States after an on-orbit transfer. Such ascertainment is important especially with respect to damage which may be caused by satellites. Such damage may amount to millions of dollars and can totally destroy a successful undertaking or put a significant financial burden on a State.

Article VI of the Outer Space Treaty lays down the concept of responsibility in law of outer space:

“States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the Moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.”

State responsibility is generally divided into two categories: direct responsibility and indirect responsibility. Generally, a State is directly responsible only for acts by its agents and servants in official capacity. In general international law, imputability is one of the requirements for holding

11 R.R. Bender, “Launching and Operating Satellites: Legal Issues”, (The Hague: Martinus Nijhoff Publishers, 1998) at 94.

12 W.B. Scott, “Multimedia Satcom Competition Intensifies”, Aviation Week and Space Technology, (April 6. 1998).

a State internationally responsible.¹³ But under space law, even acts of non-governmental entities too are ‘deemed’ to be acts of State.¹⁴ As has been put forward by Bin Cheng, international State responsibility in outer space for private space activities arises the moment a breach of an international obligation is committed unlike general international law, where State responsibility for non-governmental entities arise when the State fails in its duty to prevent or repress such breach.¹⁵ Hence, the State is responsible for space activities by its private entities even if it has been ignorant of such activity or has taken best efforts to control an activity¹⁶ under Article VI of Outer Space Treaty. Hence, change in private ownership cannot alone result in any change of liable parties.

The second sentence of Article VI of the Outer Space Treaty lays down the specific responsibility of authorization and continuing supervision by the appropriate State. This is often done by national regulation on licensing of space activities.¹⁷

It is important to understand the concept of ‘appropriate State’ in this context, though it has not been defined in Outer Space Treaty. The State having territorial jurisdiction, the State of seat of the non-governmental entity, the launching State, the State of production or any State having a connection with the space activity may be an appropriate State which should

13 *Articles on Responsibility for Internationally Wrongful Acts*, GA Res 56/83 and A/56/49 (Vol 1)/ Corr. 4, UNGAOR (2001), Article 2. [“*Articles on Responsibility*”].

14 See generally, J.E.S. Fawcett, *Outer Space: New Challenges to Law and Policy*, (Oxford: Clarendon Press, 1984) at 41; Armel Kerrest, “The Need to Implement the Outer Space Treaty through National Law in the Light of the Current and Foreseeable Space Activity” In *Proceedings of the IISL/ECSL Symposium: National Space Legislation: Crafting Legal Engines for the Growth of Space Activities: The Need for National Space Legislation*, Vienna, 22 March 2010 [Kerrest, “The Need”]; Gyula Gal, “Public International Law, Private Laws and private International Law in the System of space liability”, (2000) 43 Proc. Coll L Outer Space 157 at 157-158; Armel Kerrest, “Remarks on the Responsibility and Liability for Damages Caused by Private Activity in Outer Space”, (1997) 40 Proc Coll L Outer Space 134 at 138 [Kerrest, “Remarks”].

15 Bin Cheng, “Article VI of The 1967 Space Treaty Revisited: ‘International Responsibility’, ‘National Activities’ and ‘The Appropriate State’” (1998) 26:1 J Space L 7 at 15.

16 Kerrest, “Remarks”, *supra* note 14, at 139.

17 See *Application of the Concept of the Launching State*, G.A. Res. 59/115, UN GAOR, 59th Sess., UN Doc. A/RES/59/11 (2004). (This resolution basically presents the recommendations of Legal Subcommittee’s Working Group.); Paul Stephen Dempsey, “Liability for Damage Caused by Space Objects under International and National Law” (2011) Proceedings of IISL; Edward A. Frankle and E. Jason Steptoe, “Legal Considerations Affecting Commercial Space Launches From International Territory”, (1999) 42 Proc Col L Outer Space 297 at 302.

be determined on case to case basis.¹⁸ Though the Treaty mentions the appropriate ‘State’ and not ‘States’, it cannot be said that there should be only one appropriate State with the “most appropriate connection”¹⁹ with the activity.²⁰ This is because, if an activity is a national activity of several States which are responsible and even liable as launching States, it is unlikely that these States will give up power to authorize and supervise the space activities to one ‘appropriate State’. Of course, this does not mean that States cannot by agreement give the power to one such State. The other States, however, continue to be internationally responsible. In the case of transfer of ownership between two entities in two States, the transferee State will be considered as the ‘appropriate’ State for continuing supervision and authorisation of the satellite. This is because the operation of the satellite will be the transferee States ‘national activity’. Thus, once the transfer takes place, the transferor is no longer ‘responsible’ for the activities in relation to the satellite.

On-orbit transfers of satellite may be of 3 kinds:

- a. Between two entities within a launching State.
- b. Between two launching States of satellites or entities within the two States.
- c. Between a launching State and a non-launching State or entities in such States.

In the first case, no legal issues arise at the international level as the matter is within the domestic jurisdiction of the State.

In the second case, there is no change in liability of States. Article VII of the Outer Space Treaty provides:

“Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the Moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the Moon and other celestial bodies.”

18 Karl-Heinz Bockstiegel, “The Terms ‘Appropriate State’ and ‘Launching State’ in the Space Treaties – Indicators of State Responsibility and Liability for State and Private State Activities”, (1991) 34 Proc Coll L Outer Space 13 at 14 [Bockstiegel, “The Terms”].

19 See Ricky J. Lee, “Liability arising from Article VI of the Outer Space Treaty: States, Domestic Law and Private Operators”, (2005) 48 Proc Coll L Outer Space 216 [Lee, “Liability arising from”].

20 See “Introductory Report to Problems of Interpretation of the Space Treaty of 27th January 1967” 105 at 107-108.

The States, which are held internationally liable under Article VII of Outer Space Treaty and Liability Convention are the same, except that they are all defined as 'launching State' in Liability Convention. With these four criteria, it is evident that there can be more than one launching State. The liability for damage is fixed on the launching State under the Liability Convention.

In the second case, the transfer happens between two launching States which are already liable as launching States. The States may enter into an agreement apportioning liability between themselves as per Article V of Liability Convention, without prejudicing a victim's rights. However, as discussed later, the State of registry should be changed to the new transferee State. Furthermore, the new transferee becomes the appropriate State, responsible for continued supervision and authorisation, provided that it was not already the appropriate State before the transfer. In the transfer of Asiasat-I, Asiasat-2, APSTAR-I and APSTAR IA, the transfer was between launching States. The satellites were launched from the territory of China and the launch was procured by Hong Kong under the sovereignty of U.K. Hence, both China and U.K. are launching States. There has been no change in liable States following transfer of the satellites, as both the transferor and transferee States, having been involved in the launch of the satellites, were liable from the beginning for any damage caused by satellites.

Transfers may also be between launching and non-launching States. One example is the purchase of the BSB-1A satellite (renamed SIRIUS) by a Swedish entity from the U.K. The launching States were the U.S.A. from whose territory it was launched, and the U.K., who procured the launching. Sweden was not an original launching State. Another example is the transfer of four INTELSAT satellites on-orbit to New Sky Satellites (Netherlands). France and USA were launching States on behalf of INTELSAT, and the Netherlands was not involved in the launch.

It is in these cases that a multitude of problems arise. The new transferee State becomes the 'appropriate State' under Article VI for continued supervision and authorisation and is responsible for the space activities of the satellite. Yet, it is not liable for any damage caused by the satellite, as it is not a launching State, at least by a strict interpretation of Article VII of Outer Space Treaty and the Liability Convention. This strict interpretation have been followed by States, such as the U.K., which became the new owner of INMARSAT satellites after the privatization of INMARSAT. Not being involved in the actual launch of the satellites, it asserted that it is not a launching State for the purposes of the Liability Convention and hence not liable for the satellites.²¹ Similarly, the Netherlands, to which 4 INTELSAT satellites were transferred, asserts that it is not a launching State and hence,

21 *Note verbale dated 9 September 2002 from the Permanent Mission of the United Kingdom of Great Britain and Northern Ireland to the United Nations (Vienna) addressed to the Secretary-General, ST/SG/SER.E/417/Rev.1, 3rd December, 2002.*

not liable.²² The transferor, though it is no longer the ‘appropriate State’ to authorise the space activity, nevertheless is liable as the launching State of the satellite. In the case of the INTELSAT satellites transferred to the Netherlands, France and the USA were launching States on behalf of INTELSAT and they continue to be liable even after the satellites were transferred to the Netherlands. In the case of the purchase of BSB-1A by Sweden from the U.K., the U.K., being a launching State, continues to be liable even after the transfer of the satellite.

The concept of launching State in the space treaties considers ‘ownership’ irrelevant, defining a liable entity based on launch means ‘once a liable State, always a liable State’.²³ So, when the launching State transfers satellite to a non-launching State over which the former has no jurisdiction and control, it still continues to be liable.²⁴ The successor, being a non-launching State, is technically not liable under international law for damage caused by the satellite, despite having actual control over it. Obviously, when a comprehensive change of ownership does not bring about a change in the determination of liable parties, partial ownership transfers like lease of satellite do not result in any such change.²⁵ By forcing the State to maintain links with a space object even after it is removed from the State’s jurisdiction, the present law hinders commercial activity. Apart from this, there are complications in identifying the launching States. It is difficult to ascertain whether the transfer is taking place with a launching or non-launching State. For example, in case of the State which procures the launch, it is difficult to determine whether procurement means buying a launch contract, buying satellites on-orbit, leasing of transponders, or entering into a contract having elements of exchange of funds or sale.²⁶ The term ‘procures’ has, especially,

22 *Note verbale dated 18 February 2004 from the Permanent Mission of the Netherlands to the United Nations (Vienna) addressed to the Secretary-General*, 16th March, 2004, A/AC.105/824.

23 Henry Hertzfeld and Frans von der Dunk, “Bringing Space Law into the Commercial World: Property Rights without Sovereignty”, *Chicago Journal of International Law*, 6:1 (2005), 81 at 89; *See* 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (S. Aoki) at 8; Setsuko Aoki, “Satellite Ownership Transfers and the Liability of the Launching States”, presented in *IISL/ECSL Symposium on “Transfer of ownership of space objects: issues of responsibility, liability and registration”*, 19 March 2012; Bin Cheng, *Studies in International Space Law* (Oxford: Clarendon Press, 1997) at 468 [Cheng, *Studies*]; Susan Trepczynski, “The Effect Of The Liability Convention On National Space Legislation”, (2007) 33:1 J Sp L 221 at 224.

24 *See* Motoko Uchitomi, “State Responsibility/Liability for ‘National’ Space Activities”, (2001) 44 IISL Proc. 51 at 59; Kerrest, “The Need” *supra* note 14.

25 Hertzfeld and Dunk, *supra* note 23 at 90.

26 *See* Valérie Kayser, *Launching space objects* (Boston: Kluwer Academic Publishers, 2001) at 34; *Review of the concept of the “launching State”, Report of the Secretariat*, UNCOPUOSOR 2002, UN Doc A/AC.105/768 at 17; *See* Frans G. von

created confusion as to the level of involvement required for a State to be launching State.²⁷ An instance where determining the launching State was tricky was when OTRAG, a private company with its seat in Germany, assembled rockets abroad and launched them from privately built facilities in Zaire and Libya. The question was whether Germany could be said to have procured the launch because of the activity of one of its nationals, though the State was not in any way involved with the launch.²⁸

In this context, reference may be drawn to the Netherlands' stance regarding NSS-6 and NSS-7 which were delivered on orbit to a Dutch entity. Steve Stott, then the chief technology officer of New Skies stated that, the satellites were "designed exclusively by New Skies to match our customers' present and future business plans, while being extremely competitive with existing capacity in the region."²⁹ Clearly, this is a case of delivery-in-orbit and not purchase of a second hand satellite. However, the Netherlands takes a restrictive view of the term 'launching State' and in 2003, the Dutch government sent a *note verbale* to UN Secretariat where it asserts that it does not consider itself launching State for the delivery-in orbits.³⁰ The reason given is that the satellites were "delivered in orbit to New Skies Satellites after they were and positioned in orbit by persons not subject to the jurisdiction and control of the Netherlands."³¹ However, launching and procuring launch are two separate criteria under Article I(c) of the Liability Convention and hence, procuring launch cannot be interpreted restrictively that it approximates launching.³² Clearly, the Netherlands is a launching State for NSS6 and NSS7 and therefore, could be held liable for any damage caused by the satellites, despite its claiming otherwise.

Also, holding the State of facility from which launch takes place as launching State gives rise to confusions, especially regarding the level or type of property interest should a State have in a facility to become a launching

der Dunk, "The Illogical link: Launching, Liability and Leasing", (1993) 36 349 at 352-353 [Dunk, "The Illogical link"]; Frankle and Steptoe, *supra* note 17 at 304.

27 See C.Q. Christol, *The Modern International Law of Outer Space* (New York: Pergamon Press, 1982) at 115.

28 Bockstiegel, "The Terms", *supra* note 18 at 15.

29 "New Skies' NSS-7 satellite arrives at Arianespace launch site to be readied for mid-April launch", Space REF March 20, 2002, available at <http://www.spaceref.com/news/viewpr.html?pid=7827>.

30 Note verbale dated 29 July 2003 from the Permanent Mission of the Netherlands to the United Nations (Vienna) addressed to the Secretary-General, UN GA, A/AC.105/806, 22nd August, 2003.

31 *Ibid.*

32 Bernhard Schmidt-Tedd & Michael Gerhard, "Registration of Space Objects: Which are the Advantages for States Resulting from Registration?", Marietta Benko, Kai Uwe Schrogl, *Space Law: Current Problems and Perspectives for Future Regulation Series: Marietta Benko (Series Editor) Essential Air and Space Law, Vol 2* (Utrecht: Eleven International Publishing, 2005) at 132.

State.³³ In case of launches by aircraft, an important question is when does the launch actually take place? Is it when the aircraft starts or when the spacecraft separates from the aircraft?

Even after half a decade of practice, lift-off remains a stressful moment and because launch is the riskiest space activity, liability is fixed on the launching State.³⁴ Therefore, the transferor State is held liable even after on-orbit satellite transfer. Also, the texts of Liability Convention and Outer Space Treaty were adopted at a time when there were only two major space powers, U.S.A and U.S.S.R. Almost all other States were potential victims. Hence, there is no doubt that the Liability convention is victim-oriented. It was decided that someone should be held liable for damages due to space activities, irrespective of their own actions and as launch was the riskiest phase, States involved in launching were held liable. Secondly, affixing liability on a launching State means that territorial jurisdiction of the State applies when the satellite is on Earth, at the time of launch and such jurisdiction is much more efficient than personal jurisdiction.³⁵

The principle, that the State involved in launching is liable, has been disputed at the international level as it is contrary to principle of causation where casualty is linked to the event triggering the damage.”³⁶ The question that is raised is whether, if launching State does not have jurisdiction and control over a space object, then should it be held liable for damage caused by it.³⁷ As of now, the launching State, which transfers the satellites, continues to be liable as the Liability Convention does not foresee the possibility of

33 See Kai-Uwe Schrogl, “A new look at the “launching State”: The results of the UNCOPUOS Legal Sub-Committee Working Group: Review of the concept of the launching State: 2000-2002”, (2002) 45 Proc Coll L Outer Space 286 at 290.

34 Peter van Fenema, *The International Trade in Launch Services* (Leiden: H. Peter van Fenema, 1999) page 69.

35 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (Kerrest) at 3; A. Kerrest, “Legal aspects of transfer of ownership and transfer of activities”, in *IISL/ECSL Symposium on “Transfer of ownership of space objects: issues of responsibility, liability and registration”*, 19 March 2012 [Kerrest, “Legal aspects”].

36 Report of the Committee on the Peaceful Uses of Outer Space, UN GAOR, Supp No. 20 UN Doc. A/54/20 (1999), part II.C.4(b) (From 2000-2002, the Working Group was conducted and there was review of the concept of the ‘launching State’. The issue of the legal concept of the “Launching State” entered the agenda of the UNCOPUOS Legal Subcommittee with a comparably short preparatory period and the outcome and content of the three-year work plan was formally adopted at the session of UNCOPUOS in 1999).

37 Apart from a case of on-orbit transfer in which transferor is held liable for damage, the situation also arises when a State allows its territory to be used in launch and is not otherwise involved in it. See Schrogl, *supra* note 33.

extinguishing the liability of launching States³⁸ even though it result in unfair results.³⁹

The Question of Registration in On-Orbit Transfers

Another important question which arises with on-orbit transfers is whether the transferee can become the new State of registry. This is particularly important as under space law, jurisdiction and control over satellite is a consequence of registration.

The system of registration under outer space law, which has been laid down in Article VIII of the Outer Space Treaty and the Registration Convention, is somewhat different.

Essential functions of system of registration in outer space are as follows:

- a. without a system of registration, it is not possible to identify the space object, which has caused damage, and thus, impute liability to it;⁴⁰
- b. a complete informative system of registration minimizes the likelihood of weapon of mass destruction being put on orbit;⁴¹
- c. a registration system facilitates co-operation of several nations in tracking of a space object which is advisable, so that tracking facilities are not overloaded.⁴²

The law of liability in outer space will be very hard to enforce without a proper system of registration of space objects.

Article VIII of Outer Space Treaty

Article VIII of the Outer Space Treaty provides the following:

“A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object... while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth....”

38 Ricky J. Lee, “Effects of Satellite Ownership Transfers on the Liability of the Launching States” (2000) 43 IISL 148 at 151. [Lee, “Effects”].

39 See, Kerrest, “The Need”, *supra* note 14.

40 A.A. Cocca, “Registration of Space Objects” in N. Jasentuliyana & R.S.S.K. Lee (eds), *Manual on Space Law* (New York: Oceana, 1978) Vol 1 at 173 (173). [Cocca, “Registration”].

41 I.H.Ph. Diederiks-Verschoor, *An Introduction to Space Law*, (The Netherlands: Kluwer Law International, 2008) at 44.

42 Cocca, “Registration”, *supra* note 40 at 173 (174).

According to Article VIII, space objects have a State of registry on whose register, details of the space objects are entered. Such State of registry retains jurisdiction and control over the space objects, while in outer space and/or celestial bodies. The States cannot have territorial sovereignty in outer space or on celestial bodies according to Article II of the Outer Space Treaty.⁴³ The jurisdiction that they exercise over the space objects in their registry is quasi-territorial in nature, like the jurisdiction that States have on their ships and aircrafts.⁴⁴

Since space objects do not have nationality, it is important to register space objects. This allows State to exercise its jurisdiction and control over space objects outside its territorial jurisdiction⁴⁵ as registration, not nationality, establishes the link between a State and its space objects.⁴⁶

The wordings of Article VIII “a State party on whose registry” imply that it is talking about a national registry and not of international registration.⁴⁷ Also, the words “a State Party” suggest that there is only one State of registry for a space object.

Registration Convention

The Registration Convention elaborates on Article VIII of Outer Space Treaty.⁴⁸ The Registration Convention defines ‘State of Registry’ as a launching State on whose registry a space object is carried in.⁴⁹ The Registration Convention provides for national registration under Article II (1) of the Convention.

“When a space object is launched into Earth orbit or beyond, the launching State shall register the space object by means of an entry in an appropriate registry which it shall maintain. Each launching State shall inform the Secretary-General of the United Nations of the establishment of such a registry.”

43 *Outer Space Treaty*, *supra* note 2, Article II.

44 Cheng, *Studies*, *supra* note 23 at 467.

45 Setsuko Aoki, “In search of the current legal status of registration of space objects”, (2010) Proc. IISL at 2.

46 Cheng, *Studies*, *supra* note 23 at 483; Istvan Herczeg, “Problems of Interpretation of the Space Treaty of 27th January, 1967: Introductory Report”, (1968) 10 Proc. Coll. L.105 at 108; “Summary of discussion in Interpretation of the Space Treaty 1967” (1968) 10 Proc Coll L Outer Space 114 at 116 (Galloway, Bartos, Kopal).

47 Herczeg, *supra* note 46 at 108.

48 *See generally* Frans G. von der Dunk, “The Registration Convention: Background and Historical Context”, (2003) Proceedings of the Forty-Sixth Colloquium on the Law of Outer Space 450.

49 The Convention on Registration of Objects Launched into Outer Space [“Registration Convention”] Article I(c).

In practice, when States established national registry, they communicated the information to the UN in the form of *note verbale*, disseminated in the ST/SG/SER.E/INF. series.⁵⁰ The Convention clarifies what Article VIII of Outer Space Treaty already indicated – there is only *one* State of registry for one space object.⁵¹ Article II(2) provides the following: “Where there are two or more launching States in respect of any such space object, they shall jointly determine which one of them shall register the object.” For example, Greece and Cyprus jointly decided that Greece would register the satellite HELLASSAT-2.⁵² Also, Article I(c) and Article II(1) mandate that only a launching State can be the State of registry, creating several legal problems which will be addressed later.

In addition to domestic registers which determine the State of registry, Article III of the Convention provides that “Secretary-General of the United Nations shall maintain a Register in which the information furnished in accordance with article IV shall be recorded.” This UN Register was established for information received from member States and inter-governmental organizations, who have declared the acceptance of rights and obligations of the Registration Convention. This system of registration is mandatory for the parties to the Convention. Non-members continue to report their launches under UN GA 1721B voluntarily. Thus, United Nations maintains two complimentary registers.

Problems of Registration in On-Orbit Satellite Transfers

Can ownership of space objects can be changed while in space? Article VIII of the Outer Space Treaty provides that ownership of object is not affected by them being in outer space. On earth, such objects can be sold or bought and since the ownership is not changed by their presence in outer space, satellites can be transferred on-orbit.⁵³ In Article VIII of the Outer Space Treaty, there is a very strong co-relation between the concepts ‘registry’, ‘jurisdiction and control’ and ‘ownership.’ This is to the extent that the State of registry is supposed to and even obliged to exercise jurisdiction and control over space object and unless contrary is shown, it should be logically deemed to be the State of the owner of space object.⁵⁴ However, in case of

50 Niklas Hedman, “The United Nations Register of Objects Launched into Outer Space”, in UN/Thailand Workshop on Space Law (Lecture, Bangkok, Thailand, 16-19th November, 2010).

51 Cocca, “Registration”, *supra* note 40 at 173 (180).

52 *Note verbale dated 25 March 2004 from the Permanent Mission of Greece to the United Nations addressed to the Secretary-General*, UN Secretariat OR, ST/SG/SER.E/446 (2004).

53 See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (Kerrest) at 4; Kerrest, “Legal aspects”, *supra* note 35.

54 Von der Dunk, “The Illogical Link”, *supra* note 26 at 351.

on-orbit sale of satellites, often the State of registry and State of nationality of the new owner are different. In that case while transferee State has *de facto* jurisdiction and control, including tracking and command system,⁵⁵ it does not have *de jure* jurisdiction and control because it is not the State of registry. So, can the State of registry be changed in such cases? Nothing in the Registration Convention and the Outer Space Treaty prevents subsequent change in the State of registry.⁵⁶ The State of registry of erstwhile U.K. registered satellites – Asiasat-I,⁵⁷ Asiasat-2,⁵⁸ APSTAR 1⁵⁹ and APSTAR 1A⁶⁰ was changed when Hong Kong was transferred to China by the U.K. From 1st July 1997, the satellites were removed from the register of UK and entered into the register of China, which is now the State of registry.⁶¹ This example shows that change in the State of registry is possible. Such change may be executed by agreement between launching States regarding State of registry, as contemplated under Article II(2).⁶² However, such change must conform to the requirement of Article I(c) of the Registration Convention that State of registry must be a launching State. As per Article VIII of the Outer Space Treaty and Article II of the Registration Convention, the jurisdiction and control over the satellites is transferred from the U.K. to China which has become the new State of Registry. The U.K., being no more the State of registry, does not have jurisdiction and control over the satellites. Legal difficulty arises when the sale is between a launching and a non-launching State. The new transferee cannot become a State of registry as

55 See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (M. Trögeler) [UNCOPUOS – Trögeler] at 6; Trögeler Trögeler, *supra* note 7, “Practice of States”.

56 Kerrest, “The Need” at *supra* note 14; See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (Kerrest), at 4; Kerrest, “Legal aspects” *supra* note 35; Cheng, *Studies*, *supra* note 23 at 473.

57 Note Verbale dated 15th May 1990 from the Permanent Representative of the United Kingdom of Great Britain and Northern Ireland addressed to the Secretary-General, UN Secretariat, ST/SG/SER.E/222, 29th August 1990.

58 Note verbale dated 23 January 1996 from the Permanent Mission of the United Kingdom of Great Britain and Northern Ireland to the United Nations (Vienna) addressed to the Secretary-General, UN GA ST/SG/SER.E/300, 1 February 1996.

59 *Ibid* and Corr. 1.

60 Letter dated 21 October 1996 from the Permanent Mission of the United Kingdom of Great Britain and Northern Ireland to the United Nations (Vienna), UN GAOR, ST/SG/SER.E/316, 31 October 1996.

61 Note verbale dated 27 March 1998 from the Permanent Mission of the United Kingdom of Great Britain and Northern Ireland to the United Nations (Vienna) addressed to the Secretary-General, UN Secretariat ST/SG/SER.E/333, 3 April 1998; Note verbale dated 27 March 1998 from the Permanent Mission of China to the United Nations (Vienna) addressed to the Secretary-General, UN Secretariat ST/SG/SER.E/334, 3 April 1998.

62 See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (Kerrest), at 4; Kerrest, “Legal aspects”, *supra* note 35; See UNCOPUOS – Trögeler, *supra* note 55, at 6.

Registration Convention provides that only a launching State can be a state of registry.⁶³ The BSB-1A satellite was registered in the U.K. registry⁶⁴ and later, it was purchased on-orbit by Swedish entity though Sweden was not a launching State. The satellite is still on the UK Registry with the explanation that “notified UN on 1 February 1999 that title and control of the satellite had been transferred to a Swedish national... Now operated as SIRIUS and carried on Swedish Registry.” The State of registry is changed to Sweden and Sweden notified the same to UN.⁶⁵ It is doubtful, however, whether such an act is permissible as the Registration Convention does not allow non-launching States to become State of registry. In any case, if Sweden is a State of registry, it implies that Sweden has assumed the status of a launching State as Article 1(c) of the Registration Convention states that only launching States can be the State of registry. Hence, Sweden should be liable under Liability Convention in case a damage is caused by the satellite.

However, unlike Sweden, cases of sale of satellite to non-launching State may not be accompanied by changes in the States of registry. Canadian Telesat’s Anik was bought by Argentine entity which had factual control over it but State of registry (Canada) was not changed.⁶⁶

The case of NSS satellites of the Netherlands makes an interesting study. The Dutch government asserts that it does not consider itself launching State, State of Registry or launching authority for satellites which underwent delivery-in-orbits and on-orbit transfers.⁶⁷ Incidentally, the satellites purchased on-orbit were erstwhile INTELSAT satellites which had not been registered earlier. The Netherlands at the same time claims that:

“Following the transfer in orbit of ownership of the space objects to New Skies Satellites, the Kingdom of the Netherlands is of the opinion that it bears international responsibility for their operation in accordance with article VI and

63 See Schmidt-Tedd & Gerhard, *supra* note 32 at 131; Kerrest, “Remarks”, *supra* note 14.

64 *Note verbale dated 12 April 1990 from the Permanent Mission of the United Kingdom of Great Britain and Northern Ireland addressed to the Secretary General*, UN Secretariat, ST/SG/SER.E/219, 24th April 1990.

65 *Note verbale dated 1 February 1999 from the Permanent Mission of Sweden to the United Nations (Vienna) addressed to the Secretary-General*, UN Secretariat ST/SG/SER.E/352, 19 February, 1999.

66 *Note Verbale dated 6 February 1987 from the permanent Mission of Canada to the United Nations addressed to the Secretary General*, UN Secretariat ST/SG/SER.E/156, 13 February, 1987.

67 *Note verbale dated 29 July 2003 from the Permanent Mission of the Netherlands to the United Nations (Vienna) addressed to the Secretary-General*, UN GA, A/AC.105/806, 22nd August, 2003; *Note verbale dated 18 February 2004 from the Permanent Mission of the Netherlands to the United Nations (Vienna) addressed to the Secretary-General*, 16th March, 2004, A/AC.105/824.

has jurisdiction and control over them in accordance with article VIII of the Outer Space Treaty.”⁶⁸

It is not possible for the Netherlands to not be State of Registry yet has jurisdiction and control under Article VIII. From international perspective and at least among State parties to the Outer Space Treaty and the Registration Convention, no jurisdiction and control over space object is feasible without national registration. Control should be based on legitimate jurisdiction and should not depend on factual and technical capabilities only.⁶⁹ This can be explained by drawing rationale from the *Barcelona Traction Case*.⁷⁰ Barcelona Traction Power and Light Company was incorporated in Toronto, Canada where it also had its head office. Its assets were expropriated by Spain. In that case, the Court held that Belgium lacked *locus standi* to bring a claim on behalf of Belgium shareholders who owned most of the shares of the Barcelona Traction Power and Light Company as the company was incorporated in Canada. Thus, the Court found that the legal basis by which Canada is identified with the company as important and held that “disregarding the legal entity” of company was allowed only in exceptional circumstances.⁷¹ The reason given was “the incorporation of the company under the law of Canada was an act of free choice... this connection is in no way weakened by the fact that the company engaged from the very outset in commercial activities outside Canada.”⁷² Similarly, under space law, it is the State of registry which has jurisdiction and control. This link is established by law due to registration and should be given importance. The Netherlands cannot claim to have *de jure* jurisdiction and control just because it is in actual control of satellites, unless it becomes the State of Registry.

For the cases of NSS6 and NSS7, the Netherlands is one of the launching States. Hence, there is no restriction on it being ‘State of Registry’ under

68 *Note verbale dated 29 July 2003 from the Permanent Mission of the Netherlands to the United Nations (Vienna) addressed to the Secretary-General, Information Furnished In Conformity With The Convention On Registration Of Objects Launched Into Outer Space*, UN GA, A/AC.105/806, 22nd August, 2003 and *Note verbale dated 18 February 2004 from the Permanent Mission of the Netherlands to the United Nations (Vienna) addressed to the Secretary-General, Information Furnished In Conformity With The Convention On Registration Of Objects Launched Into Outer Space*, 16th March, 2004, A/AC.105/824.

69 Stephen Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl (eds) *Cologne Commentary on Space Law*, vol 1 (2010) at 152 cited in Setsuko Aoki, “In search of the Current Legal Status of the Registration of Space Objects”, (2010) Proc IISL 245 at 247.

70 *Barcelona Traction, Light and Power Co (Second Phase) (Belg. v. Spain)*, 1970 I.C.J. 3 (Feb. 5) [hereinafter *Barcelona Traction*].

71 *Ibid* at 39.

72 *Ibid* at 43.

Article II and Article 1(c) of Registration Convention. However, matter is less clear regarding the on-orbit transfers.

In 2009, the Netherlands furnished information about establishment of two kinds of registry: a) United Nations Sub-Registry, which will be used when the Netherlands is a State of Registry because it is a launching State, and (b) the National Sub-Registry, which will be used when the Netherlands is not a launching State or State of Registry but has jurisdiction and control.⁷³ Thus, the Netherlands continues with restrictive view.

Another interesting case is that of the U.K.'s registration of 8 erstwhile INMARSAT satellites. In 2002, the U.K. furnished information to the UN in accordance with Art. XI of Outer Space Treaty and Art. IV of Registration Convention about the change of status of 8 Inmarsat satellites (I2-F2, I2-F3, I2-F4, I3-F1, I3-F2, I3-F3, I3-F4, and I3-F5).⁷⁴ Although the U.K. acknowledges the existence of the Inmarsat satellites, it clearly states that it is not the State of registry or launching State.⁷⁵ However, as the company is incorporated in the U.K., clearly the *de facto* control over the satellites lies in the hands of the U.K. Again, an inequitable situation arises due to the current regime of international space law. By furnishing information to the UN Secretary General about the satellites owned and operated by its nationals, the U.K. follows the logic of Dutch practice and implicitly claims that jurisdiction and control over the eight satellites.⁷⁶

Solutions

This sub-section will try to find solution for inconsistencies that arise in case of on-orbit transfer of satellites under space law.

As Kerrest succinctly narrates: in the present regime of international space law, in case of change of transfer of satellite on-orbit, we may have a liable State having jurisdiction and control of the space object that they cannot control and for which another State is responsible because it is that State's national activity.⁷⁷

73 *Note verbale dated 3 June 2009 from the Permanent Mission of the Netherlands to the United Nations (Vienna) addressed to the Secretary-General, ST/SG/SER.E/INF.24 (20 Aug 2009), at 1-2.*

74 *Note verbale dated 9 September 2002 from the Permanent Mission of the United Kingdom of Great Britain and Northern Ireland to the United Nations (Vienna) addressed to the Secretary-General, ST/SG/SER.E/417/Rev.1, 3rd December, 2002.*

75 *Ibid.*

76 Setsuko Aoki, "In search of the current legal status of the Registration of Space Objects", (2010) Proc IISL 245 at 250.

77 Armel Kerrest, "The need", *supra* note 14, at 556.

1. Factors to Consider for Solution

Certain factors should be kept in mind while trying to find a solution:

- a. *Interests of the victim*: As already discussed, the space law treaty regime, especially the Liability Convention, is victim-oriented. Launching State/s are being held liable because launching is a hazardous activity. The solution should not impede the interests of the victims.
- b. *Interests of the transferor (original launching State)*: The transferor should be allowed to denounce its status and obligations as launching State after the transfer take place. It is unreasonable to hold the transferor State liable for damages by satellite after the transfer which happens in the current regime. Also, unlike the existing scenario, the State should be allowed to transfer registration (if it is the State of registry) to the new State so that it is not obligated to exercise 'jurisdiction and control' for something that is clearly not its 'national activity' anymore.
- c. *Interests of the transferee State*: Whereas the transferee State has *de facto* control over satellite and its operation is the 'national activity' of the State, the transferee State (if it is not the launching State) cannot be the 'State of registry' and hence cannot have 'jurisdiction and control'. This situation is unfair and removed from practical realities and a solution should be found. Further, the transferee State should be held liable too.

Any solution reached should be after keeping these three, somewhat conflicting, interests in mind. An ideal solution should ensure that State or international organization to whom operation and control of satellite has been transferred be regarded liable for any damage by the satellite after the transfer, responsible for the operation of the satellite, has jurisdiction and control over the satellite and regarded to be the State of registry for it.

2. Amendment of the Space Treaties

The Outer Space Treaty and the other space treaties are undoubtedly commendable endeavours. However, as the treaties were adopted in the initial phase of space era, undoubtedly, with technical innovation, commercialisation and privatisation, there has been change in circumstances. It has, however, been suggested that the treaties could do with a review and some judicious adjustments made without transforming the Treaty.⁷⁸

78 Bin Cheng, "The 1967 Space Treaty: Thirty Years on", (1997) 40 Proc Coll L Outer Space XVII at XVIII, XIX; Kerrest, "Remarks", *supra* note 14, at 309; Michael Chatzipanagioti, "Registration of Space Objects and Transfer of Ownership in

However, an amendment of the Space Treaties seem unlikely at present. With 74 Member States now it has proved to be very difficult to reach consensus in COPUOS. An amendment of the space treaties will take years for States to agree and hence not a feasible option.

3. General Assembly Resolution

Since treaties are difficult to make or amend, one way to deal with the problem may be to pass a United Nations General Assembly Resolution on liability and registration issues of transfer of ownership.⁷⁹ It is easier to gather the political will of States to pass a General Assembly Resolution. However, UN Resolutions are soft laws⁸⁰ and due to the consensus procedure of COPUOS it takes time for any resolution on space law to be passed. Hence, a General Assembly Resolution does not seem to be an efficient solution.

4. Extensive Interpretation of Existing Space Treaties

A simpler and more practicable solution is extensive interpretation of the space treaties, especially in the light of recent commercial developments as will be discussed below.⁸¹

a. Parallel Regime of Liability under Article VI of Outer Space Treaty

Article VI, according to several commentators, prescribes only regulatory responsibility for State's national space activities to be in conformity with Outer Space Treaty without imposition of any liability and Article VII of the Outer Space Treaty (elaborated in Liability Convention) speaks of the launching State's liability for damage caused by space objects towards other states or their nationals or property.⁸² The two principles seem 'nicely

Orbit", (2007)56 ZLW 229 at 231; See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (Kerrest), at 2; Kerrest, "Legal aspects" *supra* note 35.

79 Olavo de O. Bittencourt Neto, "Regulatory Options for Dealing with the Transfer of Ownership", IISL/ECSL Symposium on "Transfer of ownership of space objects: issues of responsibility, liability and registration", 19 March 2012; See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (O. De Bittencourt Neto) at 20.

80 From law-making perspective, soft law means a variety of non-legally binding instruments used in contemporary international relations. Alan Boyle and Christine Chinkin, *The Making of International Law*, (Oxford: oxford University Press, 2007) at 212.

81 See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (O. De Bittencourt Neto) at 18; Michael Chatzipanagiotis, "Registration of Space Objects and Transfer of Ownership in Orbit", (2007)56 ZLW 229 at 233-238.

82 See example, Awford, "Commercial Space Activities: Legal Liability Issues", in Mani Bhatt and Reddy (eds), *Recent Trends in International Space Law and Policy* (1997) at 388.

divided, no link or relation established, no trouble arising'.⁸³ On a closer look, they seem less independent and there exists a connection between the concepts liability and responsibility in space law.⁸⁴

Firstly, French, Spanish, Chinese and Russian, all being authentic languages for Outer Space Treaty,⁸⁵ use same terms for the English words 'responsibility' and 'liability' in Article VI and VII respectively. If no differentiation exists between the two terms, then Article VII can be seen as corollary to Article VI i.e. liability in Article VII arises as a consequence of breach of international law arising from national space activities.⁸⁶

Article III of Outer Space Treaty states that 'States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations.'⁸⁷ Thus space law is not a 'self-contained regime'⁸⁸ though it lays down certain *lex specialis* which modifies general international law's application in space to that extent.

In general international law, liability flows to a State by its responsibility for a wrongful act⁸⁹ and is a part of the broader concept of responsibility. Responsibility entails double penalty – both economic and juridical.⁹⁰ In a case, the PCIJ said that 'the concept of obligation to make reparation (liability) is an indispensable complement of a failure to apply a convention, and there is no necessity for this to be stated in the convention itself.'⁹¹ Accordingly, a State should be liable for 'all' its national space activities. This is in contrast to the Liability Convention and Article VII of Outer Space Treaty under which the launching State is liable to pay compensation for damages resulting from loss of life, personal injury or damages to property and liability may arise with fault or absolutely. Liability which flows from Article VI has a broader connotation and hold liable even those States which have link with the activity but not launching State, though of course no absolute liability arises under liability flowing from Article VI. Acts like

83 Frans G. von der Dunk, "Liability versus Responsibility in Space Law: Misconception or Misconstruction?" (1991) 34 Proc. Coll. L. Outer Space 363 at 363.

84 See Stephen Gorove, "Liability in space Law: An Overview" (1983) 8 Ann Air & Sp L 373 at 376.

85 Outer Space Treaty, *supra* note 2, Article XVII.

86 Lee, "Liability arising from", *supra* note 19 at 216-217.

87 See *International co-operation in the peaceful uses of outer space*, GA Res 1472(XIV), UNGAOR,(1959); *International co-operation in the peaceful uses of outer space*, GA Res 1721 (XVI), UNGAOR, 1961; *Declaration of Legal Principles*.

88 B. Simma, "Self-contained regimes" (1985)16 NYIL 1985 at 111.

89 *The Corfu Channel Case (United Kingdom of Great Britain and Northern Ireland v Albania) Merits [1949] ICJ Rep 4* at 22.

90 See Aldo Armando Cocca, "From Full Compensation to Total Responsibility", (1983) 26 Proc Coll L Outer Space 157 at 157.

91 *Case Concerning the Factory at Chorzów (Germany v Poland) (Merits) (1928) PCIJ (Ser A) No 17* at 29.

damage caused by a State's astronauts and damage caused by a satellite owned by non-launching State (after in-orbit transfer) are national activities and in these cases, responsible States are liable only under Article VI and not Article VII of Outer Space Treaty or Liability Convention.

It is true that the concept of responsibility and liability in international law has been somewhat modified by Outer Space Treaty, which is the *lex specialis*.⁹² States are held directly responsible even for private activities and in certain circumstances, liability arises even though the State had not committed an internationally wrongful act but such modifications are only 'to the extent'⁹³ it is specifically done. Therefore, the general concept of responsibility in international law which has residual character continues to govern space law.

Under general international law, there is reparation in case of damage and hence, States can be held to compensate materially for damage caused by and due to its space activities. Since Article VII of Outer Space Treaty and Liability Convention are neither inconsistent with principle of reparation as a consequence of State responsibility and nor do they specifically exclude the principle, the principle applies. Therefore, even if the new transferee State cannot be held liable under the Liability Convention and Article VII of Outer Space Treaty, the State can be found to be liable under Article VI of Outer Space Treaty and under general international law.⁹⁴

b. Procuring Launch Includes On-Orbit Transfer of Satellite

It has been suggested that to avoid this unfair situation 'launching State' need not be the original launching State and any State which has obtained benefit from launch, whether or not it was involved in the actual launch of satellite, should be taken as launching State.⁹⁵ The status of launching State need not be acquired only at the moment of launch but may be acquired later and in case, a State purchases satellite on-orbit can be said to have procured the launch.⁹⁶

c. State of Registry and Non-Launching State

Authors have suggested that by a separate agreement, the transferor may assign its rights under Article VIII of the Convention to the transferee. If several States were involved in the launch of the satellite, then this solution is based on the presumption that the transferor State has the right of

⁹² *Articles on Responsibility, supra* note 13, Article 55.

⁹³ *Ibid.*

⁹⁴ Kerrest, "Remarks on the Notion of Launching State", (1999) 41 Proc IISL at 309.

⁹⁵ Kai-Uwe Schrogl and Charles Davies, "A New Look at the Concept of the 'Launching State' – The results of the UNCOPUOS Legal Subcommittee Working Group 2000 – 2002", (2002) German Journal of Air and Space Law (ZLW) 359 at 370-371.

⁹⁶ Julian Hermida, "Transfer of satellites in orbit. An International Law Approach", (2003) 46 Proc Coll L Outer Space 189 at 191.

jurisdiction and control under Article VIII of Outer Space Treaty, Article II of Registration Convention and agreements between launching States regarding the State of registry.

However, such interpretation is in derogation to Article VIII of the Outer Space Treaty. As discussed above, in space law, the nationality link is not there and the only way States have jurisdiction and control over space objects is through registration. Altering the link between registration and jurisdiction through alternative arrangements between States will bring about uncertainty regarding which State has jurisdiction and control.⁹⁷ It is questionable whether by such agreements, States can escape their obligations under Article VIII of the Outer Space Treaty and derogate from it by an agreement.⁹⁸ An agreement between States cannot derogate from treaty provisions which the States have ratified or acceded to according to the principle of *pacta sunt servanda*.⁹⁹ In any case, in the author's opinion, if the drafters wanted that third parties can be made State of registry by agreement, they would have been more specific about it.

However, if transferee States of on-orbit satellite transfer are regarded as launching States for procuring launch, they can also be State of registry having 'jurisdiction and control' without violating Article VIII of the Outer Space Treaty.

d. Assessment

Extensive interpretation may seem to be a plausible solution, though there are many difficulties in implementing it. Several States may not accept such interpretation. The only way, that such extensive interpretation can become the norm is by state practice and expression of intent to abide by such interpretation (*opinio juris*) by the States. We have seen this happening as the meaning of 'peaceful purposes' in Outer Space Treaty has changed from 'non-military' to 'non-aggressive' over time with States practice.¹⁰⁰

5. National Legislation

Another alternative solution can be regulating the matter by national space legislations. In the recent past, the Legal Subcommittee of COPUOS and various commentators have stressed upon the importance of national

⁹⁷ Cheng, *Studies, supra* note 23 at 473-474.

⁹⁸ Ian Brownlie, *Principles of Public International Law*, (Oxford: oxford University Press, 2008) at 671.

⁹⁹ Vienna Convention on Law of treaties, Article 26.

¹⁰⁰ A.J. Butler, 'Peaceful use and Self-defence in Outer Space' (1982) Proceedings of The Twenty-Fifth Colloquium on The Law of Outer Space, p. 77, 78; Soviets Outstanding US on Space by \$ 3-4 million, 'Aviation Week and Space Technology', July 19, 1982, p. 28; Donald A. Vogt, 'Space Ams Control: A Difficult Process', Law' (1982) Proceedings of The Twenty-Fifth Colloquium on The Law of Outer Space, p. 167, 168.

legislations and that they can solve several issues not addressed by the space treaties.¹⁰¹ According to some commentators, the solution even in this case lies in enacting and enforcing national legislations.¹⁰² Space-faring nations may lay down jurisdictional scope of space activities which will be governed by the State laws.¹⁰³ However, these domestic laws have no application in international sphere as a State cannot escape international responsibility and liability by enacting internal laws.¹⁰⁴ Hence, though undeniably, national regulations can ‘improve’ the situation, they cannot be viable solutions by themselves, especially when private entities are involved.

6. Unilateral Declarations

It has been recognised by publicists that unilateral acts are capable of having legal effects¹⁰⁵ and a State can accept international obligations by unilateral declarations.¹⁰⁶ According to the Court, the conditions to be fulfilled for a declaration to be binding are: a) it should be made by a State with the intention of being bound by its terms (b) the declaration be made publicly and (c) there is no requirement of a *quid pro quo*.¹⁰⁷

One solution to the present problem is the State of the transferee provide an official public declaration to the United Nations Office for Outer Space Affairs, accepting liability (including duty to indemnify fully in case victim claims compensation from transferor State) and submitting information regarding the transfer of space object.¹⁰⁸ However, lack of a standard

101 Ram S. Jakhu, “Regulation of Small & Micro Satellites”, paper presented in 6th IAASS Conference: *Safety is Not an Option*, Montreal, Canada, 21-23 May, 2013 (unpublished) at 2; Frans von der Dunk, “Fundamental Provisions for National Space Laws, *Meeting international responsibilities and addressing domestic needs: Proceedings United Nations*, Vienna, 2006 at 96, 97.

102 Horl & Gungaphul, *supra* note 9, “Problems related”; Trögeler, *supra* note 7, “*Practice of States*”; UNCOPUOS – Trögeler, *supra* note 55, at 8.

103 *Report of the Legal Subcommittee on its fortieth session, held in Vienna from 2 to 12 April 2011*, Annex II, UN COPUOS, UN A/AC.105/763 dated 24th April 2011 at para 9.

104 Vienna Convention on the Law of Treaties, Article 27.

105 Ian Brownlie, *Principles of Public International Law*, (Oxford: Oxford University Press, 2008) at 640.

106 *Ibid* at 641.

107 *See also Case Concerning Military and Paramilitary Activities in and against Nicaragua* (Nicaragua v United States), ICJ Reports (1986) 14 at 132 (para 261); *North Sea Continental Shelf*, ICJ Reports (1969) 4 at 25. (paras 27-28); *Case Concerning the Frontier Dispute* (Burkina Faso v Mali), ICJ Reports (1986) 554 at 573.

108 *See Neto*, *supra* note 79; 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (O. De Bittencourt Neto) at 20; *See Michael Gerhard*, “Transfer of Operation and Control with Respect to Space Objects – Problems of Responsibility and Liability

procedure for a unilateral declaration may eventually give rise to conflicts of interpretation and conflicts of opinion.¹⁰⁹

7. Contracts between Private Entities

Another solution is that the transferor entity and transferee entity enter into a private contractual arrangement by which the transferee entity agrees to be liable and indemnify any compensation that the transferor (and/or the State of the transferee) has to pay in relation to damage by the satellite. In any case, as a matter of commercial sense,¹¹⁰ since transferor usually has to reimburse its State under national laws if the State is held internationally liable for damage by satellite, such contractual arrangements have been entered into during such transfers.¹¹¹ This can be in the form of separate agreement or a part of the transfer agreement. In case of satellites given as security interest as contemplated by the Space Assets Protocol, similar provisions providing explicitly the possibility of transfer of satellites and liability should be incorporated.

However, it does not seem wisest to let the matter to be governed by complex system of private contracts. The problem at hand is one of public international law which governs States and where private parties have no standing.

8. Bilateral Treaties

An alternative solution is to incorporate provisions, that make the transferee liable and that exculpate transferee from liability, in bilateral agreements between the transferor's and transferee's States. These agreements should also put obligation on both the States to give information regarding the same the UN Secretariat and transferee should also maintain such and any other related information in their national registers to avoid confusion.

These agreements are in the nature those contemplated in Article V of the Liability Convention, though those agreements are only between original launching States.¹¹² In this case, the agreement will not be between launching States but an agreement concerning liability between the transferor and transferee States.

of States", (2002) 51 ZLW 571 at 579; Michael Chatzipanagiotis, "Registration of Space Objects and Transfer of Ownership in Orbit", (2007)56 ZLW 229 at 233-234.

109 Neto, *supra* note 79; See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (O. De Bittencourt Neto) at 20.

110 Lee, "Effects", *supra* note 38 at 151.

111 Frans G. von der Dunk, "Commercial Space Activities: An Inventory Of Liability – An Inventory Of Problems", (1994) 47 Colloquium on the Law of Outer Space 161 at 163; Dunk, "The Illogical Link", *supra* note 26 at 354-355.

112 Kerrest, "Legal aspects", *supra* note 35; See 840th Meeting, UNCOPUOS LSC, 19th March, 2012, Vienna (A. Kerrest) at 5.

Whereas these agreements do not change the status of the States as launching State or State of registry, they provide a workable fair system, beyond the existing international law. However, it may be difficult to have bilateral treaties in cases where satellites are transferred to creditor because of default of payment and certain other circumstances. Space financing contracts with satellites as space assets thus have to involve the States. Also, private entities who are parties to the transfer may find it difficult to make their States enter into bilateral agreement. Thirdly, such agreements cannot transfer the State of registry if the transferee State is non-launching State according to Article I(c) of Registration Convention. If the transferee State is launching State, it was in any case liable from before and provision for apportioning liability by agreement is already given in Article V of Liability Convention and provision for agreement on State of registry in Article II (2) of Registration Convention.

Conclusion and Summary

The present regime on the matter is ambiguous and dissatisfactory. Law has not been changed to be at pace with the commercial development. As a result, States practices are clearly incoherent and at times, even violative of international space law. Also, the isolated cases cannot be seen as creating customary international law regarding on-orbit transfer of satellites.¹¹³

It seems that in most cases the entities involved in these deals have simply entered into private arrangements without State involvement and have often not changed their status, both legally and factually, after the transfer. Naturally, need was not felt in most cases to inform the UN Secretary general. Also, there are attempts made by States to escape liability for damage by space objects. A situation may arise when transferor State denies liability for not being in actual charge of operation of satellites and transferee State denies liability, taking advantage of lacunae and inconsistencies in space treaties. Further, States do not have a consistent practice regarding submitting information to UN Secretariat regarding the transfer, despite UN Resolutions recommending such information to be submitted. The best practice is seen in the transfer of satellites registered in U.K. to China where U.K. informed UN about removing the satellites from its register and China informed UN about including the satellites in its register.

The legal difficulties and the incoherent State practice necessitates an immediate solution. The concerned matter has been discussed in the UNCOPUOS and there does not seem to be political will to take concerted efforts by States. Multilateral attempts or intention to accept a principle by States at large which creates customary law does not seem to be underway at the moment. The immediate solution is bilateral agreements by concerned States whereby the transferee agrees to be liable and to indemnify transferor

113 J. Hermida, "Argentine Space Law and Policy" (1996) 21:2 *Ann. Air Sp. L.* at 178.

for any damage by the satellite. Meanwhile, the States should make attempts towards acceptance of an extensive interpretation of the space treaties. The existing space treaties do not need an overhaul and are, in fact, creditable and foresighted work. They simply need a more logical interpretation in the light of changes that are happening in outer space activities. Transferee State in an on-orbit satellite transfer should be considered as procuring the satellite and hence a launching State. This means that the transferee State can be held liable and become State of registry as well. This is the most simple yet pragmatic solution. In addition, States should make attempts to make their national law regime more favourable to satellite transfers.