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SOURCES OF SPACE LAW

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Nick Hughes, Partner
T: +44 (0)20 7264 8555
Nick.Hughes@hfw.com

holman fenwick willan hfw

Public international space law

Airspace and outer space: the limits of territorial sovereignty.

General principle that a State owes a duty to protect other States from injurious acts by individuals within its jurisdiction and of international responsibility in case of injury to another State.

Early Resolutions of the UN guided, without binding force, that international law, including the Charter of the United Nations, applies to outer space and to celestial bodies and that exploration and use should be carried out in accordance with international law. Subsequently, the UN has been the forum for the negotiation and agreement to five treaties dealing with the overall legal framework for exploration and use of outer space, obligations to render assistance to astronauts, to deal with the fear of damage caused by launching rockets and other objects, to provide means – through schemes of registration – to identify objects launched into space both on a national basis and at the UN and to provide that the Moon is part of the common heritage of mankind.

The U.N. International Treaties on Outer Space (1) General

The five international space law instruments are as follows:

	Parties	Signatories*
▪ Outer Space Treaty 1967 (into force 10 Oct 1967)	102	26
▪ Rescue of Astronauts Agreement 1968 (into force 3 Dec 1968)	92	24
▪ Liability Convention 1972 (into force 1 Sep 1972)	89	22
▪ Registration Convention 1975 (into force 15 Sep 1976)	60	2
▪ Moon Treaty 1979 (into force 11 July 1984)	15	4

*Note:

(1) Signature by a State of a treaty without formal ratification nevertheless implies that the State accepts a duty not to behave in such a way as to defeat the purpose and main aims of the treaty.

(2) Certain inter Governmental organisations have made Declarations relating to these instruments.

(3) There are a number of other International Agreements and national legislation.

The U.N. International Treaties on Outer Space (1) General

- Treaties are produced by The United Nations. The Committee on the Peaceful Uses of Outer Space (COPUOS) is the primary forum. It has a Legal Subcommittee and a Secretariat (the United Nations office for Outer Space Affairs). COPUOS was established by the UN General Assembly in 1959. (USSR had launched the first satellite, Sputnik 1, into orbit on 4 October 1957).
- Treaties elaborated during “Cold War” and space race between USSR and USA.
- At the time space activities were initiated and funded by Governments or inter-governmental institutions (e.g. Intelsat). Industry role limited to that of contractors or suppliers. Treaties make no reference to commercial activities (but some references to “non-governmental entities”).
- Scope and wording represents compromise on many issues (Liability Convention elaborated over ten years). However, they gave effect to work beginning in late 1950s and to principles set out in Several Resolutions of the UN General Assembly, in particular The Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space of 1963.

Outer Space Treaty 1967 (1) Text

This Treaty lays down the overall framework for space activities.

Article I

" The exploration and use of outer space, including the moon and other celestial bodies shall be carried out for the benefit and in the interest of all countries, irrespective of their degree of economic or scientific development **and shall be the province of all mankind"**

This Article gives effect to the principles the subject of UN General Assembly Resolution 1721 of 20 December 1961 and, in part, UN General Assembly Resolution 1962 of 13 December 1963 but nevertheless an important concession from the two super-powers the USSR and the USA who were the main adversaries in both the arms and the space race

Article III

"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**, **in the interest of maintaining international peace and security and promoting international co-operation and understanding"**

Again, very important references to international law, the need to maintain peace and co-operation in the context of the prevailing political situation and dangerous flash points such as the Cuban missile crisis in 1962.

Outer Space Treaty 1967 (2) Text

- Article IV

"States Parties to the Treaty undertake **not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction**, install such weapons on celestial bodies, or station such weapons in outer space in any other manner"

This Article gave force to the principle behind U.N. General Assembly Resolution 1884 of 17 October 1963 and demonstrates a clear link between a need for international agreement on space activities that was heavily influenced by worries over an expansion into space of an arms race.

"**The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes**."

An important provision given the lack of signatories to the later Moon Treaty.

Outer Space Treaty 1967 (3) Text

Article V

“**States Parties to the Treaty shall regard astronauts as envoys of mankind** in outer space and shall render to them all possible assistance in the event of accidents, distress or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their States Parties”

The provisions of this article anticipate and state the essence of the Rescue of Astronauts Agreement

Article VI

"States Parties to the Treaty shall bear **international responsibility** for national activities in outer space...the activities of non-governmental entities...shall require authorisation and continuing supervision by the appropriate State Party”.

Makes clear that space activities are to be subject to authorisation and supervision at national level.

Outer Space Treaty 1967 (4) Text

Article VII

"Each State Party..that launches or procures the launching of an object into outer space...and each State Party from whose territory or facility an object is launched, is **internationally liable for damage** to another State Party..or to its natural or juridical persons by such object or its component parts on the Earth, in airspace or in outer space.. "

Responsible party is at level of the State. From this it can be determined that where parties are from the same State, national law will apply with respect to disputes/claims.

Article VIII

"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, and over any personnel thereof**, while in outer space or on a celestial body."

Anticipates Registration Convention.

Outer Space treaty 1967 (5) Text

Article IX

"States Parties shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to **avoid their harmful contamination** and also adverse changes in the environment of the Earth resulting from the introduction of extra terrestrial matter..."

This provision recognises risk of pollution in space (introduction of diseases?) but does not anticipate risk of space debris.

Article XI

"…..States Parties to the Treaty conducting activities in outer space, including the Moon and other celestial bodies, **agree to inform the Secretary General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities"**

Again, anticipates the Registration Treaty although the idea of notification of results is a little optimistic.

Outer Space Treaty 1967 (6) Summary of Principles

- The exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind;
- Outer space shall be free for exploration and use by all States;
- Outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means;
- States shall not place nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies or station them in outer space;
- The Moon and other celestial bodies shall be used exclusively for peaceful purposes;
- Astronauts shall be regarded as envoys of mankind;
- States shall be responsible for national space activities whether carried out by governmental or non-governmental activities;
- States shall be liable for damage caused by their space objects;
- States shall avoid harmful contamination of space and celestial bodies;

Outer Space Treaty 1967 (7) additional comments

- Its concepts and some of the specific provisions were modelled on the Antarctic Treaty. Like that treaty it sought to prevent “a new form of colonial competition” and the possible damage that exploitation could cause.
- Proposals were being made by the US, even before the launching of Sputnik 1 in 1957, for the international verification of the testing of space objects – was part of a proposal for partial disarmament.
- The signing of the Limited Test Ban Treaty in 1963 was a significant milestone in discussions between the Soviet Union and the West between 1957 and 1966 with many proposals and counter proposals in particular regarding the issue of weapons of mass destruction space. (subsequently addressed in Article IV of the OST)
- The OST was the first of the International space Treaties and one with most ratifications (102) and signatories (26) – includes most, if not all of, space-faring nations.

Outer Space Treaty 1967 (8) additional comments

- It has 17 Articles and provides the foundation for the rest of space law. It refers to a number of issues which are further elaborated in the four subsequent Treaties on specific aspects.
- Ratification of the OST implies acceptance of many of the provisions of the other Treaties even when a State has not specifically ratified those subsequent Treaties.
- Although it contains a provision (Article XV) regarding possible amendments, the Treaty has never been updated.

Liability Convention 1972 (1) Text

Article II

" A launching State shall be **absolutely liable** to pay compensation for damage caused by its space objects on the surface of the earth or to aircraft in flight. “

There is thus a strict liability standard applicable to the State(s) for such damage caused by a space object, launched within its responsibility, even when damage is caused by circumstances outside of its control.

Article III

" ...damage elsewhere...to a space object.. launching State shall be liable only if the damage is due to its **fault**... “

For damage sustained in space a fault liability standard applies such that the State is liable only to the extent that such damage is caused by fault of the State (or States) responsible for the launch.

Liability Convention 1972 (2) Text

Article V

" Whenever two or more States jointly launch a space object , they shall be **jointly and severally liable** for any damage caused.

Note: Article IV extends this principle in case of damage caused in space to a space object of a third State and, without prejudice to the rights of the third State, the burden of compensation shall be apportioned between the first two States i.a.w. the extent to which they are at fault or, if this cannot be established, equally.

Article VIII

" **A State** which suffers damage, or whose natural or juridical persons suffer damage, **may** present to a launching State a **claim** for compensation for such damage.. “

Any action under the Convention to seek compensation for damage must be pursued as between the States concerned.

Article X

" A claim...may be presented..not later than **one year** following the date of the occurrence of the damage or the identification of the launching State which is liable. “

There is a statute of limitation of one year.

Liability Convention 1972 (3)

- Articles X-XV address the procedures to be followed to file a claim under the Convention.
- Note that whilst a State may pursue a claim under the Liability Convention it may alternatively seek redress by application to the courts of the launching State but it cannot do both.
- Whom may claim ?

  This is a Convention to facilitate the payment of compensation. Art VIII allows , as is usual under international law, a State to present claims a.o.o. damages sustained by itself and by its nationals but also, where such claims have not been presented, another State may claim in respect of damage sustained by any person in its territory and, failing such claim presentation, another State may claim damages on behalf of its permanent residents.
- Claims presentation / dispute resolution procedure :

  (i) Art IX provides for claims to be presented through 'diplomatic channels', if necessary, in the absence of diplomatic relations, by use of a third State.

  (ii) Arts XIV – XX enable recourse, failing settlement of a claim through diplomatic negotiations after one year, to a process of third party assessment by a Claims Commission, with resolution within a further period of two years and six months. If the parties agree, the 'decision' shall be "final and binding". Otherwise its 'award' shall be "final and recommendatory" and considered by the parties in good faith. The ability to have recourse to a third party assessment is a crucial element of the Convention, potentially important for its utility; the mechanism in the Convention reflects compromise in the negotiation of the text.

Liability Convention (4) Definitions (Art 1)

- '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 ;

  (Thereby there are four categories of State, each treated on the same footing.)

- 'space object' means:

  (i) Component parts of a space object; and

  (ii) Its launch vehicle and parts thereof.

  (Thereby the phrase, found in OST 67, of "launching ..into outer space" is avoided.)

- 'damage' means:

  (i) Loss of life, personal injury or other impairment of health;

  (ii) Loss of or damage to property of States, of persons or of IGOs.

  (The Convention does not contain any limitation of liability. It also does not set out the law applicable to the heads and amount of compensation : a controversial issue in course of negotiation of the draft having regard to material differences as between States. The fourth preamble to the Convention refers to "international rules and procedures..prompt payment...full and equitable compensation to victims.. Art XIII provides as a default that compensation shall be payable in the currency of the Claimant State.)

Liability Convention (5) additional comments

- The third of the five International Treaties with the third highest number of ratifications (89) and signatories (22), include most, if not all of, the space-faring nations.
- The OST and the Liability convention are the most important treaties.
- Introduces a comprehensive Third Party Liability (TPL) regime in respect of damage caused in air, space and on the ground.
- Some potential problems with definitions e.g.
  - in certain circumstances which State is deemed to be the “launching state”?
  - what constitutes a “space object”?
  - to what extent can space debris be considered a space object?
  - what is meant by “fault” and “negligence” (both terms being used)?
  - is indirect damage covered as well as direct damage?
- There are likely to be some different interpretations under different national legal systems

Liability Convention 1972 (6) additional comments

- Where damage has been caused to persons or property that is insured, insurers would normally look to exercise subrogation rights against the persons responsible for the cause of the damage. The insurer could only invoke the provisions of the Convention through the intervention of the relevant State (not necessarily the State of the insurers).
- If space debris is considered to be a space object, in circumstances where debris causes damage, it may not be possible to trace it to a particular launching State.
- Only one instance where the Liability Convention was invoked (under article 2 - strict liability in respect of damage on earth): In 1978 Soviet Spacecraft RORSAT Cosmos 954, in part survived re-entry and left a scattering of radio-active debris on Canadian territory. Canadian Gov. lodged a $6M claim to clean up. Was settled for $3M on diplomatic basis (without recourse to a Commission established for the specific purpose as envisaged in the Convention)

Liability Convention 1972 (7) additional comments

- Has never been a claim made under Article 3 of Liability Convention relating to damage in orbit (where proof of fault is required).
- However, this would have been possible in 2009, when the Iridium-33 civil communication satellite was in collision with COSMOS 2251 (a derelict Russian military satellite). Some speculation as to why Iridium LLC, the operator, did not seek to invoke the Convention through the intervention of US Gov.(difficulty to prove Russian fault, Iridium satellite at end of life and relatively low value.
- (If Iridium-33 was insured under an “all risks first party” insurance, the insurer(s) (not necessarily a US entity) would ordinarily have been entitled to invoke a subrogation clause in the event of payment of an insurance claim but would need to invoke the Convention provisions through the intervention of the US Government.)
- A further possible complication is the determination of the “launching State”. Iridium is a US Corporation which procured the satellite and its launch but the launch itself was undertaken by the Russian Space Agency on a Proton vehicle from Baikonour in Kazakhstan. Therefore Russia or Kazakhstan could be considered to be the launching state.

Rescue of Astronauts Agreement (1) Key Principles

- Astronauts are regarded as “envoys of mankind”.
- Astronauts in distress on earth should be assisted as much as possible.
- Also astronauts in distress in space.
- States are required to provide information to support assistance efforts and to notify launching authority and Secretary General of the U.N..
- Return of space objects to State by whom they are registered.
- “Objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to the State Party, which shall, upon request, furnish identifying data prior to their return”
- Reaffirms concept of peaceful exploration and use of outer space.

Rescue of Astronauts Agreement 1968 (2) comments

- Time wise, this was the second, of the five UN Treaties relating to space activities, to be concluded and is second only to the OST in terms of number of ratifications achieved (92 and 24 signatories plus 2 “declarations” made by ESA and Eumetsat).
- Opportunity for intergovernmental organisations (ESA and Eumetsat) effectively to become parties to the treaty was a first in space law and more widely.
- Is the shortest of the five Treaties – only ten Articles.
- Elaborates on relevant aspects of OST Article V (which refers to astronauts as “envoys of mankind”) and Article VIII (which refers to space objects).

Rescue of Astronauts Agreement (3) comments

- At the time, the US and the USSR were the only States capable of placing men in space. However, by also including space objects, when returned to earth, the provisions covered the launching capabilities and space activities of other States.
- Some vagueness in text and possibility of differing interpretations. Rescue Agreement provides that the launching authority must bear the cost of recovery of space objects falling onto the territory of another State but makes no reference to the cost of rescue of astronauts.
- The Agreement refers to “Astronauts” and “personnel of a spacecraft” without defining the terms, (although the OST refers to “astronaut”). For practical purposes “personnel of a spacecraft” and the terms “astronaut”, “cosmonaut” (Russian) and “taikonaut” (Chinese) can be considered to refer to the same thing.

Rescue of Astronauts Agreement (4) comments

- Visitors to the ISS such as Denis Tito and those who followed him, known as “spaceflight participants”, were distinguished from professional astronauts in ISS documents applicable between ISS partners. However, spaceflight participants have received extensive training and, more generally, would the same distinction be made between them and professional astronauts for the purpose of the Rescue Agreement?

- Situation with regard to the potentially large numbers of sub-orbital space tourists is different, although in some ventures such as that of Virgin Galactic, those who have signed up to become space tourists are referred to by the operators as “astronauts”. But can they really be considered as being “envoys of mankind” or astronauts when by comparison , their training is likely to be minimal?

Rescue of Astronauts Agreement (5) comments

- However, in the event of incidents involving space tourists it is likely that humanitarian considerations will prevail and all necessary and possible assistance will be duly provided.
- The agreement focuses upon obligations at the level of States and there is no consideration of the activities and implications for commercial entities.
- Few cases where the Agreement has been invoked with respect to recovery of space objects and none with respect to recovery of astronauts. But likely to become more relevant with increase in number of States with capability of manned spaceflight and increase in number of manned missions.

Registration Convention 1975 (1) Text

- Article II – "…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".

  "The contents of each registry and the conditions under which it is maintained shall be determined by the State of registry concerned."

  (But see Article IV below.)

Registration Convention 1976 (2) Text

- Article IV- “Each State of registry shall furnish to the S.G. of the UN, as soon as practicable, the following information…carried in its registry:
  - a) name of launch State or States
  - b) appropriate designation of space object or registration number
  - c) date and territory or location of launch
  - d) basic orbital parameters, including:
    - i) nodal period
    - ii) inclination
    - iii)apogee
    - iv) perigee
    - v) general function of the space object

Registration Convention 1975 (3) additional comments

- Came into force in 1976. Is the fourth of the five UN Space Treaties.
- Has been ratified by 60 States, signed by 4, with 2 declarations. But those who have ratified include all of the leading space-faring nations.
- Second shortest of five Treaties (12 Articles).
- Elaborates on Article VIII of the OST which introduces the concept of registration and the issue of jurisdiction over registered objects into space ventures (a concept much used with other major mobile – usually commercial – assets).
- Link to Liability Convention in that it facilitates identification of States causing damage.

Registration Convention (4) additional comments

- Increasingly important given problem of space debris and increasing congestion in space.
- Some limitations:
  - No reference is made as to when an object has to be registered (should be prior to launch);
  - Should be a requirement for registry to be updated as necessary to reflect material changes;
  - Main objective is to secure jurisdiction and control over item and to facilitate space traffic management but for different reasons including security issues, not all space objects are registered, thus reducing its value.

Moon Treaty 1979 (1) Principles

- Bans any military use of celestial bodies, including weapon testing or as military bases.
- Bans all exploration and uses of celestial bodies without the approval or benefit of other States under the ”common heritage of mankind” principle (Article 11).
- Requires that the UN Secretary General must be notified of all celestial activities (and discoveries developed thanks to those activities).
- Declares all States have an equal right to conduct research on celestial bodies.
- Declares that any State that obtains samples, during research activities, must consider making available part of the sample to all countries/scientific communities for research.
- Bans altering the environment of celestial bodies and requires that States must take measures to prevent accidental contamination.

Moon Treaty (2) additional comments

- Is the second longest of the five international treaties with 21 articles.
- Is a failed Treaty in that only 15 States (none of which engage in self-launched manned space exploration) have ratified it, together with 4 signatories. Treaty has had a negligible effect on space flight.
- Relevance will increase with planned and foreseen future missions to the moon, to other planets, for asteroid mining etc.
- Lack of States signatory is not an oversight. States do not wish to limit the scope of their future activities which could have strategic implications for security and commercial exploitation.
- However, The Moon Treaty includes provisions which are repeated from the Outer Space Treaty to which States are bound by ratification of OST (e.g. Articles I,III,IV and IX of the OST).

How Have International Space Treaties Stood Up? (1)

- The OST and the Liability Convention are the main pillars of international law governing space activities and most space-faring nations have ratified them;
- No revision agreed of UN space treaties since they came into force (OST is 46 years old and last year was the fortieth anniversary of the Liability Convention). This is in contrast to e.g. aviation treaties which have been subject of a number of major revisions. There have however been further Resolutions of the UN General Assembly relating to use of outer space. Also a work programme of review of States practices/national legislation;
- Difficulty in enforcement of Treaties in specific cases. Depends on cooperation of parties and on diplomatic pressure;
- Treaties were concluded in the infancy of space activity when only governments were funding and initiating activities. Many developments were not anticipated such as the volume of activities, range of space applications, number of space players, problem of space debris, growth in commercial activities, and suborbital space tourism etc.

How have International Treaties Stood Up? (2)

- An increase in space activities and of commercial space activities in particular, is likely to increase the number of incidents where Treaties may be invoked and put to the test.

Some further uncertainties with the Liability Convention:

- The Liability Convention does not expressly provide the sole and exclusive cause of action;
- The State concerned may be reluctant to invoke the Liability Convention for a specific incident;
- What otherwise would be the legal regime and jurisdiction applicable to third party claims ? (There may be options as to which legal regime to invoke);
- What would be the effect on the licensing arrangements?
- Can a form of claims management/dispute resolution be devised in which commercial parties can have confidence ?

How have the Treaties Stood Up? (3)

- The provisions have not routinely been engaged and used (although- separately constituted - inter governmental commissions have been formed in cases of launch failures).
- What is the test of fault?
- Are the instruments engaged in all cases of damage ?
- Are the provisions appropriate for occurrences in space involving private parties; will private parties want claims managed by States or will they prefer self control ?

Some of the Benefits of the Treaties

- There is a link between the OST 1967 and the subsequent treaties so that even where the subsequent treaties have not been ratified, ratification by a State of the OST indicates a commitment to issues addressed there and further elaborated in the subsequent treaties;
- With some exceptions e.g. the Moon Agreement, there has been almost universal acceptance of the Treaties by the space-faring nations;
- The Treaties provide public interest protection for damage on the surface of the Earth or to aircraft in flight;
- They do provide for State liability in case of operator default or non existence at time of occurrence;
- They do provide long tail liability, without a time limitation defence (save following an occurrence);
- They have provided a reference point for registration and licensing of space activities at State level;
- The Liability Convention provides that its invocation would not stand in the way of any claim for the same event being pursued “in the courts or administrative tribunals or agencies of a Launching State”;

The current space risk environment: (1)

- The legacy of near 5000 launches made by all space faring nations.
- The reliability of launch vehicles and of satellite performance;
- The capital values in space assets are large but nothing compared to the values of terrestrial assets;
- The widespread distribution of satellites around the GEO ring;
- The existence of data sharing amongst major commercial operators of GEO satellites;
- The rarity of collisions involving space objects and none with an aircraft in flight;
- The ability of States to de orbit space objects without terrestrial damage e.g. MIR space;
- The absence of commercial operator financial default;
- The availability of adequate and affordable liability insurance;
- The existence of a scheme of State legal liability.

The current space risk environment (2)

- The experience of satellites subject to a loss of control;
- The increasing dependencies on space derived data / the commercialisation of space;
- The potential for large exposures for failed business plans, loss of property and other liability;
- The use of space for military purposes;
- The growth of many types of space debris and the existence of geopotential wells of debris concentration the need for debris mitigation and growing calls for debris removal to avoid a cascade of collisions;
- The potential for relative physical congestion in the GEO ring;
- The LEO risks; and
- The short term nature of insurance / the long term nature of the liability exposure.

What may the future bring? (1)

- When will there be an occurrence of note involving significant damage and how will the parties react ?
- Will there be a new assessment of the long tail nature of liability exposure ?
- Will States maintain / change licensing criteria ?
- What recourse in an appropriate case would there be to liability outside of the international instruments ?
- How will the international community deal with the actions of rogue states?
- New risks: How to deal with the threat of cyber attacks on space-based systems by states or criminal groups?

What may the future bring? (2)

- What law might be applied outside of the Liability Convention; could major commercial operators face a 'market share' liability in USA for damage caused e.g. by debris?
- Could there be new taxes?
- Will the Liability Convention be amended?
- What new rules for dispute resolution? e.g. See: Optional rules for arbitration of disputes relating to outer space activities.
- How will issues relating to new space-based activities and applications e.g. suborbital space tourism and liabilities from the operation of global navigation systems, be addressed?
- Will COPUOS and the UN remain as the law makers for space activities?

Other International Rules, Protocols, Guidelines, Codes of Conduct etc

- EU draft Code of Conduct for Outer Space Activities – 2008.
- Unidroit Protocol on Mobile Space Assets 2012 (not yet ratified).
- Permanent Court of Arbitration (PAC) in 2011 issued “Optional Rules for Arbitration of Disputes Relating to Outer Space Activities”.
- 2002 Inter-Agency Space Debris Coordination Committee (IADC) issued guidelines re Space Debris.
- 2007 Scientific and Technical Subcommittee (STSC) of the UN COPUOS adopted a consensus set of space debris mitigation guidelines.
- 2010 International Telecommunications Union (ITU) recommendations that before end of operational life satellites should be boosted into a safe “graveyard” orbit.
- Possibility of Unidroit elaborating a Protocol with respect to TPL issues relating to operation of global navigation systems.

ITU - Role with Respect to filing for Orbital Slots (1)

- The International Telecommunication Union (ITU) is a Geneva-based specialised agency of the UN. The legal framework of the ITU comprises the basic instruments of the Union which are the Constitution and the Convention, (complemented by the Administrative Regulations) which have treaty status and are binding on ITU members.
- In 1844, Samuel Morse had sent first public message over a telegraph line between Washington and Baltimore. In 1865 the first International Telegraph Convention was signed in Paris by 20 founding members and the ITU was established to facilitate subsequent amendments to the initial agreement.
- In 1959 the ITU started to study space radio communication and in 1963 a Conference was held to allocate frequencies to the various space services. Subsequent conferences made further allocations and put in place regulations governing the use, by satellites, of the radio- frequency spectrum and associated orbital slots.

ITU (2)

- Radio Regulations (RRs) are now drafted, revised and adopted by the World Radiocommunications Conferences (WRCs) of the ITU which are typically held every three or four years (last one in 2012 WRC-12). RRs have the force of an International Treaty.
- RRs cover both legal and technical issues – serve as a supranational instrument for the optimal international management of the radio spectrum.
- They contain procedures for the notification, coordination and registration of satellite "space stations" (radio station on board the satellite rather than satellite itself) - procedures intended to ensure efficient use of two finite and valuable resources: radio spectrum and satellite orbits.

ITU (3)

- Rules of Procedure are approved by the Radio Regulations Board (RRB). They complement the RR by providing further clarification of application of particular regulations and in establishing a practical procedure that may not be provided in the current regulatory procedure.
- The ITU allocates orbital slots but only to States and not to private sector companies. It is the responsibility of each Member State of the ITU to regulate the rights and obligations of commercial organisations and other national entities.

  *Ofcom also represents the British Overseas Territories, the Channel Islands and the Isle of Man.

  In the UK, since 2003, Ofcom has been responsible for representing the UK* in bodies concerned with the management of the radio spectrum – includes operating procedures under the ITU's RRs for the coordination, notification and registration of frequencies used by satellite networks.

Ofcom

- Ofcom is required to decide whether to submit applications for a satellite network to the ITU for registration. Applicants must demonstrate the technical, financial and legal credentials to construct, launch and operate the proposed system in conformity with timescales contained in their business plan.
- Ofcom consultation on the procedures that it operates on behalf of the UK in the coordination and notification to the ITU. 16 orgs. responded. Results published in 2005. Questions asked:
  - Making filing process more transparent and competitive;
  - Whether Ofcom submit conflicting filings to ITU;
  - Whether system of reassignment of filings be introduced;
  - Responsibilities of operators and Ofcom in coordination process;
  - Possibility of introduction of fees and charges;
  - Possibility of transferring filings between UK operators;

Filing for Orbital Slots and Frequencies – Some Issues

- Over-filing of satellite networks – “paper-satellites” – reserving orbital positions with associated frequencies without actual use – has blocking effect and increases problems of coordination. In GEO there are roughly 10 times more filings than satellites in orbit;
- Reliable assessment of level of congestion of spectrum/orbit is more and more difficult. Uncertainty about usable spectrum and usable coverage - competition for slots and spectrum imposes constraints and risks on new projects;
- Dominance of large parts of the orbit by a few large players;
- At present, allocation is on a “first –come- first- served” basis. This may not be sustainable;
- Uncertainty about interference- 2 degree spacing, hybrid satellites with transponders operating in different frequency bands;
- Difficult for the WRC to achieve consensus on measures to take.

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