

The Legal Regime

Session 3

RANJANA KAUL

*Partner, Dua Associates Law Offices
New Delhi, India*

Space Policy & Law Course

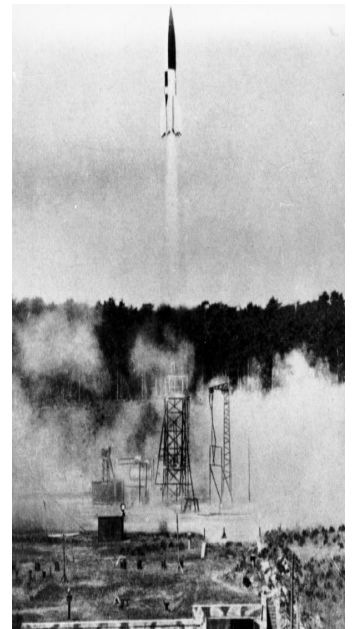
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LONDON INSTITUTE OF SPACE POLICY AND LAW

Outer Space

Air Space

- No written definition in international law.
- It is universally accepted that the *Kármán Line*, 100 km above mean sea level, is the boundary between 'Outer Space' and 'Air Space' .
- The Earth's atmosphere becomes too thin for aeronautical purposes around 100 km.
- Delimitation has evolved through State Practice.
- Militarily – *the ultimate high ground* – V-2 Guided Missile, WWII
- Civil – to 'use' of *natural resources* (including commercially...)



Natural Resources in Outer Space

Space Resource Utilization

- Orbits
- Orbital Slots
- Radio Frequency Spectrum
- 1990 – 1991 Operation Desert Storm
- Tools for Governance, Economic, Social Development and Security
- Commercial Space Assets
- Deep Space Exploration
- Mining the Moon & Asteroids
- Human Habitation on the Moon and Mars

unrestricted freedom of access to –in-from Outer Space

Sources of Space Law

- **Public International Law**

- UN Charter
- UNGA Resolutions
- International Space Treaties
- ITU Convention and Radio Regulations

- **General International Law** - recognized principles of law – **ICJ Statute Art.38 (1)**

- recognized by "civilized" nations. ... justice, natural law, analogies to private law, principles of comparative law, or general conceptions of international law
- Judicial decisions, teachings by highly qualified publicists of various nations (*subsidiary means for determination of rule of law*)

- **Private International Law**

- National Laws (*municipal law*) and Policy
- **Treaties ; Agreements, Collaboration, Cooperation Agreements** – bilateral /multilateral/ international
E.g. ISS - Artemis Accords - ESA Gateway space station Partnership
- **Commercial International Law**
- UNIDROIT Draft Space Assets Protocol coordinated effort by governments and commercial space sector

United Nations Charter, 1945

- **Purpose & Principles**
- International peace and security - prevention and removal of threats to the peace –
- Suppression of acts of aggression or other breaches of the peace
- Settlement of international disputes by peaceful means
- Principles of justice and international law
- Friendly relations among nations based on respect for the principle of equal rights
- International co-operation in solving international problems
- **To be a center for harmonizing the actions of nations in the attainment of these common ends.**
- **United Nations General Assembly** - 51 Members (193 in 2020)
- **UNC A.13 – Resolutions** – make recommendationsencouraging the progressive development of international law and its codification ...
- **UNC- Statute of the ICJ**

Outer Space

The Trigger

- **5th October 1957: USSR 'Sputnik'**

First artificial Earth communications satellite launched on the R-7 rocket from Baikonur Cosmodrome, Kazakhstan.

- **17th December 1957: USA 'Atlas A'**

First ICBM - was designed and realized by Dr. Wernher von Braun.

Space Race

- **Triggered a military revolution of extraordinary strategic consequences.**
- **New political, technological and scientific developments.**
- **Information Age.**



Race to Space & UN 1957

- UN used to thwart mutual ambitions
- USSR maintained that “**peaceful**” meant activities that were “non-military” that all military activities in outer space were non-peaceful and possibly unlawful.
- US maintained that “**peaceful**” meant “non-aggressive”
 - *Continued to place into orbit a growing number of military payloads
 - * increasingly dependent on space technology in their military planning.
- UNGA 1148(XII) , 14th November 1957 the exploration and use of outer space for peaceful purpose



UN General Assembly

1958

The Institutional Mechanism

- **UN Committee on Peaceful Uses of Outer Space (UNCOPUOS)**

Ad hoc 1958 – Permanent 1959

- Scientific & Technical Sub Committee
- Legal Sub Committee

- **UN Office of Outer Space Affairs (UNOOSA)**

- *Estd.1958*

Consensus – UNGA Resolution



UNGA Resolutions 1958-1963

- UNGA 1721(XVI) A & B , 21st December 1961
- Prohibition on national appropriation of parts of Outer Space and resources
- Application of general international law and the UN Charter

- **Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, 1963** (Limited Test Ban Treaty) - (*underground tests excepted*)
- * 1968: UNGA - use of nuclear technology for *peaceful purpose*

- **UNGA Resolution 1962 (XVIII) Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space”** unanimously adopted on 13 December 1963

- OUTER SPACE TREATY 1967



International Space Law Treaties

- **Outer Space Treaty, 1967**

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies

- **Rescue Agreement, 1968**

On the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.

- **Liability Convention, 1972**

Convention on the International Liability for Damage Caused by Space Objects

- **Registration Convention, 1974**

Convention on Registration of Objects Launched into Outer Space

- **Moon Agreement, 1979**

Agreement Governing Activities of States on the Moon and other Celestial Bodies



Outer Space Treaty, 1967

International Obligations – Rules for the Space Order

- **Recognizes** ‘Common Heritage of Mankind’; ‘Peaceful Purpose’; ‘Benefit of all Peoples’; “Non-Discrimination’, ‘Freedom of Access, Use*, Exploration*, Scientific Investigation - Sharing
- **Requires** activities to be conducted in accordance with international law, including UN Charter, in the interest of maintaining international peace and security and promoting international cooperation.
- **Prohibits** ‘National Appropriation’ *
- **Prohibits** placement of Nuclear Weapons and WMD in orbit or to be installed on celestial bodies or from being stationed in Outer Space.... *Including* establishment of military installations, fortifications, testing any type of weapon and conduct of military maneuvers on celestial bodies.
- **Requires** astronauts to be regarded as envoys of mankind – assistance in outer space, land and high seas, safely and promptly returned – inform
- **Imposes** international responsibility* and internationally liable *
- **Requires** registration of space objects
- **Requires** Due Care of corresponding interests of Other States - Prior consultation – Harmful Interference
- **Prohibits** harmful contamination of and the introduction of extra-terrestrial matter into outer space, including celestial bodies – adverse changes – inform UN Sec. Gen ‘ if reason to believe...’
 - **Opposition to New Space Treaties after 1979**

Outer Space Treaty 1967

Space Resource Utilization

- Article 1

- **The exploration and use of outer space and celestial bodies including the Moon**

(1) “ Exploration ” distinct from “ Use ” .

(2) **“Use” means “ Exploitation”**

Meteorological research, Telecommunications and *potential use of Planetary Resources and for Human Habitation*

(3) **“ International responsibility” and “ Internationally liable”**

Activities carried out by governmental agencies or by non-governmental agencies

Communications Satellite Corporation (1963-2007) - already regulated under US federal laws



UNGA Resolutions

COPUOS

- **Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, 1982**

[UN Resolution 37/92] - Principles are compatible with sovereign rights; free dissemination of scientific/cultural information for education, socio-economic development; compliant with OST, 1967, ITU Constitution & Radio Regulations; protection of copyrights & protection of neighboring rights (WIPO).

- **Principles Relating to Remote Sensing of the Earth from Outer Space, 1986**

[UN Resolution 41/65] - Legal implications of remote sensing; improving natural resource management; land use and protection of environment; sensed stated to have access to primary data and analyzed data on a non-discriminatory basis on reasonable costs/terms.

- **Principles Relevant to the Use of Nuclear Power Sources in Outer Space, 1992**

[UN Resolution 47/68] - Safety, dangers from nuclear power sources; generation of electric power on board space objects for non propulsive purpose; safety analysis; address of authority to be intimated in case of accident, safe use, OST Article VI (international responsibility) and Article VII (international liability) compensation in context to' launching state'.

- **Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, 1996** [UN Resolution 51/122]



Outer Space Treaty , 1967

Obligation of Responsibility & Liability – National Law

UNGA Resolutions - COPUOS

- **Application of the concept of 'Launching State', 2004** [UN Resolution 59/115]
- Considers development/enactment/implementation of national laws - national authorization and continuing supervision of the activities in space of non-governmental entities under their jurisdiction;
- Concluding agreements in accordance with the Liability Convention with respect to joint launches or cooperation programs; submission of information on a voluntary basis on current practices regarding on-orbit transfer of ownership of space objects.

- **Debris Mitigation Guidelines, 2008** [UN Resolution 62/217]
Voluntary guidelines to limit debris released during normal operations.

The Inter-Agency Space Debris Coordination Committee (IADC) established to coordinate worldwide activities related to man- made and natural debris in space.

- **COPUOS Guidelines for Long Term Sustainability of Outer Space Activities, June 2019 (LTS)**
- Policy for space governance of Low Earth Orbit : (managing further congestion)
- National level implementation of Best Practices to ensure effective and sustainable use of space asset
- National Regulations of space activities
- Need for basic level of SSA for public and private use at the national level.



Outer Space Treaty , 1967

International Obligations – National Law

Responsibility & Liability Distinguished

- **OST A.VI - International responsibility**
- *Direct Responsibility* for its own government activities/ space objects ; **AND**
- *Indirect Responsibility* for national activities in outer space by its non-govt. entities
- Due Authorization and * Continuing Supervision
- License – Technical Mechanism (ground station - CC&T)

- **OST A.VII - Internationally liable for damage caused in outer space**
- *Direct Liability for damage* caused by its govt space object to the space object of another State or third party; **AND**
- *Indirect Liability* for damage caused by a non-govt space object to the space object of another State or third party
- Insurance requirement – Risk Sharing

- **OST A.VIII - Register a space object launched into outer space**
- Retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body

Implementing Space Treaty Obligations

Harmonizing international obligations into Municipal law

- Enact Space Activities and National Space Policy - (Regulatory Framework)
- Executive Orders – Directives- Guidelines- Norms- Procedures , Practices and Standards
- Predictable, Balanced – clearly define rights and obligations - actionable legal rights
- Appropriate procedural law and institutional mechanism (Regulator)
- National Space Agency - Private Sector (NGO)
- 1. **Establish National Registry of Space Objects** (jurisdiction & control of space object) [OST A.VIII and Registration Convention]
- 2. **Licensor** -
 - [Launch License /Permit](#) : [OST A.VI]
 - Regulatory framework **due authorization** – **Fit for Purpose and Fit for Use**
 - Operation of a launch or re-entry site- design and manufacture of spacecraft - Technical specifications and standards for space object – safety of space object – certification of technology - debris mitigation – environment - end of life requirements - Safe operation and SSA
 - Mechanism for **continuing supervision** and management of technical risk
[License for Space Operations](#) [A.VII and Liability Convention]
 - **Liability for Damage** – **Insurance** – quantum – **risk sharing** - waiver/cross waiver - ‘launching state’
 - [License for Establishing Ground Station](#)- Control Command & Telemetry centre



1979 -2020

Absence of Consensus on New International Space Law Treaties

- **OST Article II – Prohibits National Appropriation of Outer Space**
- *No private property rights in outer space (orbits-orbital slots, RF, celestial Bodies including the Moon)*
- Bold Innovative Space Technology and Applications, Private Enterprises supported by National Space Policies
- **Commercial Utilization of Planetary Resources**

National Laws

- **US Space Resource Exploration and Utilization Act, 2015**
- **US Commercial Space Launch Competitiveness Act, 2015**
- **Private property rights in outer space resources and planetary resources**

- **Luxembourg - The Law on the Exploration and Use of Space Resource, 2017**
- **Article 1: Space resources are capable of being appropriated, in accordance with international law.**
- **To issue permits for the right to explore and use space resources for commercial purposes**

Intention to remain consistent with the Principles (OST) is categorically stated

The Space Order & State Practice

Outer Space Treaty, 1967

- No Definitions
- No Monitoring
- No Verification
- No Enforcement
- No Consequences for Non- Compliance

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Comparing International Space and Air Law Regimes



- Comparisons:
- **Civil Activities**
- **Delimitation** - Absence of Definition / State Practice

- Differences
- **Sovereignty** - Horizontal - national air space over territory and territorial sea (12 nautical m). Vertically 100km (30km-160km)
- **Regulation:** Chicago Convention, 1944; and 19 Annexes contain **Definitions** – ICAO , Montreal
- **A.37- SARPS** technical specifications in order to achieve "the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation".
- **A.12 : ' Rules of the Air'** - **Requires** each Contracting State to ensure that all aircraft bearing its nationality mark, wherever they may be, comply with the rules of the air applicable and in force to the particular airspace.
- **Flight over High Seas** - Over the high seas, the rules in force shall be those established under this Convention and requires prosecution by the state of its carrier
- **Sovereign Function** : Bilateral Agreements between Member States (**Air Services Agreement, 1946**).
- **A.28** : Air Navigation Services
- **Annex 13 - Aircraft Investigation** - objective is to improve safety of air travel
- **Liability** - 1st tier – absolute - 2 tier liability – fault/ contributory negligence [Montreal Convention 1999 -
- **Commercial Air Transportation Association** : IATA 1945



Comparing International Space, Air and Convention on Law of the Seas Regimes



- **UNCLOS – Rules - Rights and responsibilities of nations with respect to their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources.**
- **Sovereignty** – territorial waters (12 nautical miles) - Vertical airspace 100km over sovereign territory
- **Freedom of Navigation** - within and outside of the maritime jurisdictions of countries.
- (i) right of innocent passage for ships flying the flag of a sovereign state to travel in territorial waters other countries if it is not prejudicial to peace, order and security of the coastal state ; (ii) transit passage, (iii) archipelagic sea lanes passage ; and (iv) freedom of the high seas.
- **Freedoms of the Air** – commercial aviation rights granted to a country's airline the privilege to enter/land in another country's airspace.

• Outer Space & The Seas

- **Comparisons:**
- **Sovereignty** : Prohibited on the High Seas
- **Principles -Concepts** : Common Heritage of Mankind, benefit of mankind, exclusively for peaceful purpose, due regard , consultation, prior notification, protection of marine **environment**, **responsibility and liability**
- Right of exploring, prospecting and exploiting mineral resources in an ' Area'
- **International Seabed Authority to act on behalf of mankind**
- **Equitable sharing of resources**
- **Balanced growth of trade, international cooperation , interest of developing countries**



Outer Space , UNCLOS and the Antarctic Treaty System *(in force)*

- Applicable to the area south of 60° South Latitude, including all ice shelves and islands.

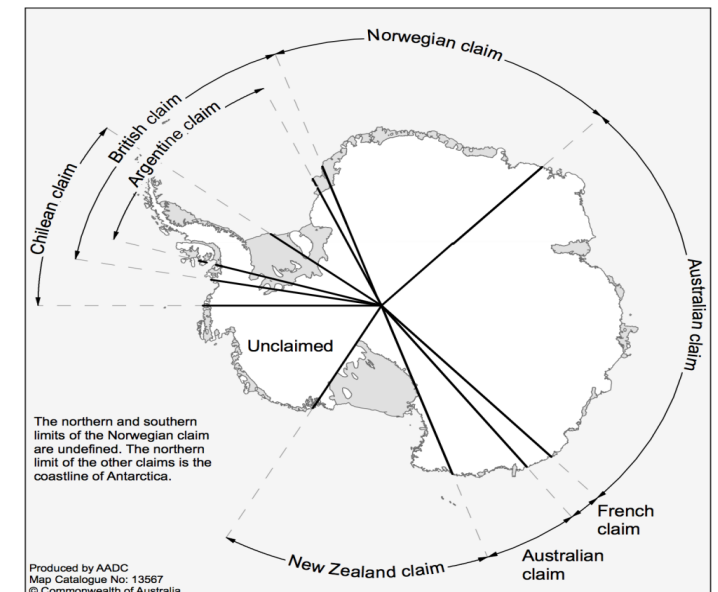
- Comparisons

- Principles and Concepts:

- Ensure that "in the interests of all mankind that Antarctica shall continue **forever to be used exclusively for peaceful purposes** and shall not become the scene or object of international discord."
- Prohibits military activity , except in support of science
- Scientific research and results and data freely available
- Prohibits nuclear explosions and the disposal of nuclear waste
- Convention on the Regulation of Antarctic Mineral Resource Activities, 1983-88

- Differences

- Protocol on Environment Protection to the Antarctic Treaty, 1998 (Madrid)
- All territorial claims held in abeyance – No assertion or denial of claims.
- No new claims after 1961



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- Any Questions?

Thank You.

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