



In need of a legal framework for space exploration

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Outline

- *Why*
- *Description of current frame*
 - ***General freedom and its limits***
 - *Non-Appropriation*
 - *Protection of the Outer Space Environment*
 - *International Cooperation*
- *Evolution*
- *Conclusion*



Why ?

- ***Legal certainty***
- ***Space exploration = high risk endeavours:***
 - heavy investments
 - highly hazardous
 - potential damages difficult to assess
- ***Balancing of interests***
 - ➔ ***Sharing of liabilities/ benefits in appropriate ratio***



Existing Framework

- ***General Observations with regard to “Exploration” in the Corpus Iuris Spatialis***
- ***1967 Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space***
- ***Common Interest of all Mankind in the progress of exploration and use of outer space for peaceful purposes, Preamble***



The general freedom

- ***Fundamental legal basis: Article I, 2 and 3 of the Outer Space Treaty***

“Outer space, including the Moon and Other Celestial Bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

There shall be freedom of scientific investigation in outer space, including the Moon and Other Celestial Bodies, and States shall facilitate and encourage international cooperation in such investigation.”

- ***Exploration = investigation of universe beyond Earth's atmosphere, by means of manned and unmanned spacecraft***



The limits: Non-Appropriation (1/2)

- ***Article II OST:***

Outer space, including the Moon and Other Celestial Bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

- ***Necessary corollary to general freedom***

Factual exclusive uses due to diverse technical possibilities should not give rise to exclusive rights

- ***Any means of appropriation prohibited.***

Confirmation of equality of States regardless of current degree of technological development.



Non-Appropriation (2/2)

Moon Agreement

- ***Article 1: also applicable to other celestial bodies within solar system***
- ***Article 11: concretisation of general principle***
 - ***Neither surface nor subsurface to become property.***
 - ***The placement of personnel/ equipment or other not to create a right of ownership.***
- ***Clear distinction between appropriation/ property and right to collect/ remove samples for scientific purposes, Article 6.2***

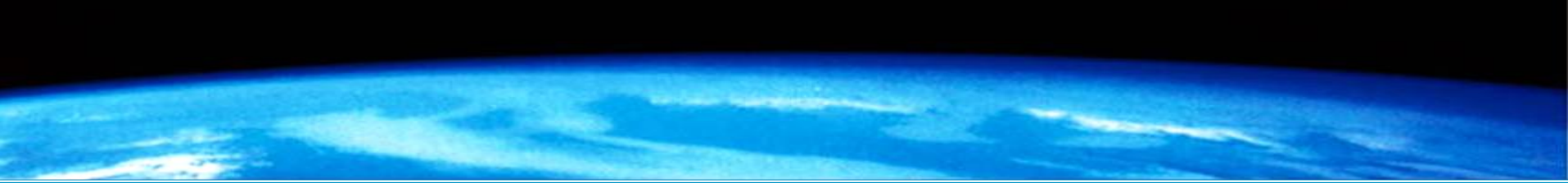


Protection of Outer Space Environment (1/5)

- *Provisions in the Space Law Treaties*
 - *Article IX OST:*
 - avoid harmful contamination of outer space
 - avoid adverse changes in the environment of the Earth resulting from the introduction of extra-terrestrial material
 - adopt appropriate measures.
 - No definitions
 - Discretion of State Parties.
- Effect as such small.

Protection of Outer Space Environment (2/5)

- **Provisions in the Space Law Treaties**
 - **Article 7.1 Moon Agreement:**
 - take measures to prevent disruption of existing balance of the lunar environment:
 - introducing adverse changes
 - harmful contamination through introduction of extra-environmental matter
 - otherwise
 - take measures to avoid harmful affection of terrestrial environment
 - Issues of forward and backward contamination addressed
 - existing balance of extra-terrestrial environment comes into focus, but no clear definitions.
- Article 7.3: Possibility to establish zones of special protection based on scientific interest.**



Protection of Outer Space Environment (3/5)

- *COSPAR Planetary Protection Policy*

- *Reference to guide compliance with obligations of States Parties to OST*
- *Policy of probabilistic avoidance of contamination*
- *Consistent system of specific recommendations: 5 categories for target/body mission type combinations and suggested ranges of requirements based on scientific interest*
- *Continuous policy to comply with guidelines, but not legally binding*



Protection of Outer Space Environment (4/5)

- ***Principles Relevant to the Use of Nuclear Power Sources in Outer Space***
 - ***Technically only viable option for most exploration missions***
 - ***UN GA Res on NPS Principles in 1992: Universal acceptance but no binding commitments***
 - ***Protection of individuals, populations and the biosphere against radiological hazards***
 - ***Avoidance of contamination of outer space***
 - ***Thorough and comprehensive safety assessment to be conducted by Launching State; results to be made publicly available***
 - ***Notification in case of re-entry***

Protection of Outer Space Environment (5/5)

General international environmental law

- Principle 21 of the 1972 Stockholm Declaration:

States have, in accordance with the Charter of the United Nations and the principles of international law, [...] the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

→ Outer Space included

→ although as such not legally binding, may be regarded as customary international law.

- Principle 15 of the 1992 Rio Declaration:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities.

- Article 8 (h) 1992 Convention on Biological Diversity:

Each Contracting Party shall, as far as possible and as appropriate prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species



International Cooperation (1/2)

- key to implementation

- ***Art. I.1 OST: Exploration and use of outer space = Province of all mankind, for the benefit and in the interest of all countries.***
 - No monopolisation of results for national purposes
 - Establish equal possibilities
 - Co-operate wherever possible.
- ***Article 6.2 Moon Agreement:***

[...] States Parties shall have regard to the desirability of making a portion of such samples available to other interested States Parties and the international scientific community for scientific investigation. [...]
- ***The status of astronauts as envoys of mankind***
 - Article V OST: all possible assistance in event of accident.
 - 1968 Rescue Agreement: concretisation
 - Article 10 Moon Agreement: expand to "persons"



International Cooperation (2/2)

• Global Exploration Strategy

- 14 space agencies developed "Framework for Coordination"*
- Vision for globally coordinated space exploration*
 - Open and inclusive*
 - Flexible and evolutionary*
 - Based on mutual interest*
 - Allows for optional participation based on level of each agency's interest*
- International coordination mechanism = voluntary non-binding forum*
- Action plan to share strategies and efforts*
- Agree on standards for interoperability of practical features such as communications, control, life support and docking systems*
- Develop mechanisms for provision of payload opportunities*
- Provide forum to discuss on issues such as technology transfer and property rights*



Some trends in the evolution of the law

Three phases in space law making:

1. Elaboration of fundamental international space law conventions

- Driven by space race, national interests
- Binding commitments, but deliberately vague language

2. Adoption of special legal regimes in form of UN General Assembly Resolutions

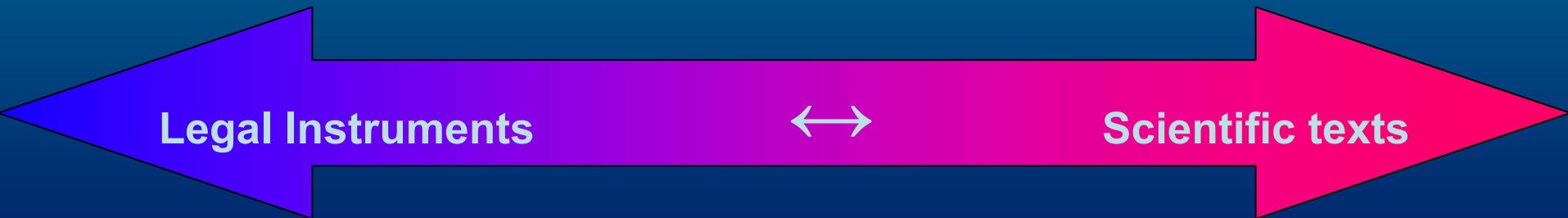
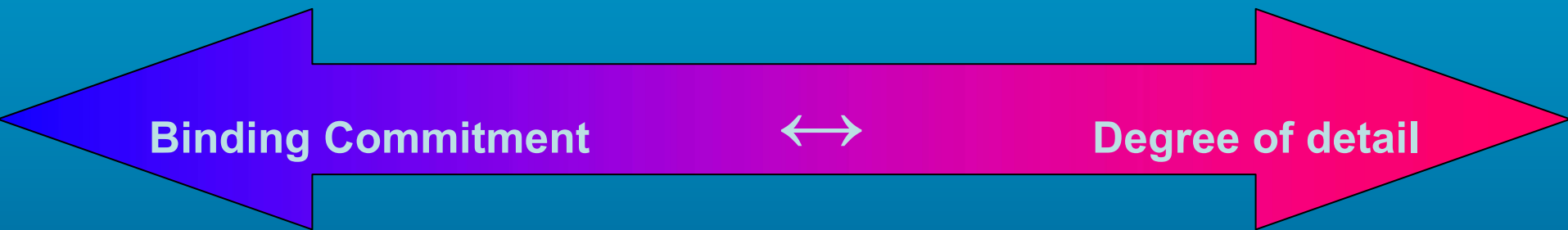
e.g. Direct Broadcasting, Remote Sensing

3. New era of flexibility

Growing number and diversity of space-faring nations and entities

→ Scientific community introduce Rules of the Road.

Some trends in the evolution of the law





Some conclusions

- ***Existing regime:***
 - ***Compromise between opposite positions: balance between freedom to explore and wish to preserve same freedom to other States and future generations.***
 - ***Protection of the environment, with special emphasis on scientific concerns.***
 - ***Fragile balance ← soft law character***
 - ***Limited international control***
- ***Scientific community gives impulse for development of space exploration programmes and develops "rules of the road".***