National Legislation Governing Commercial Space Activities

by

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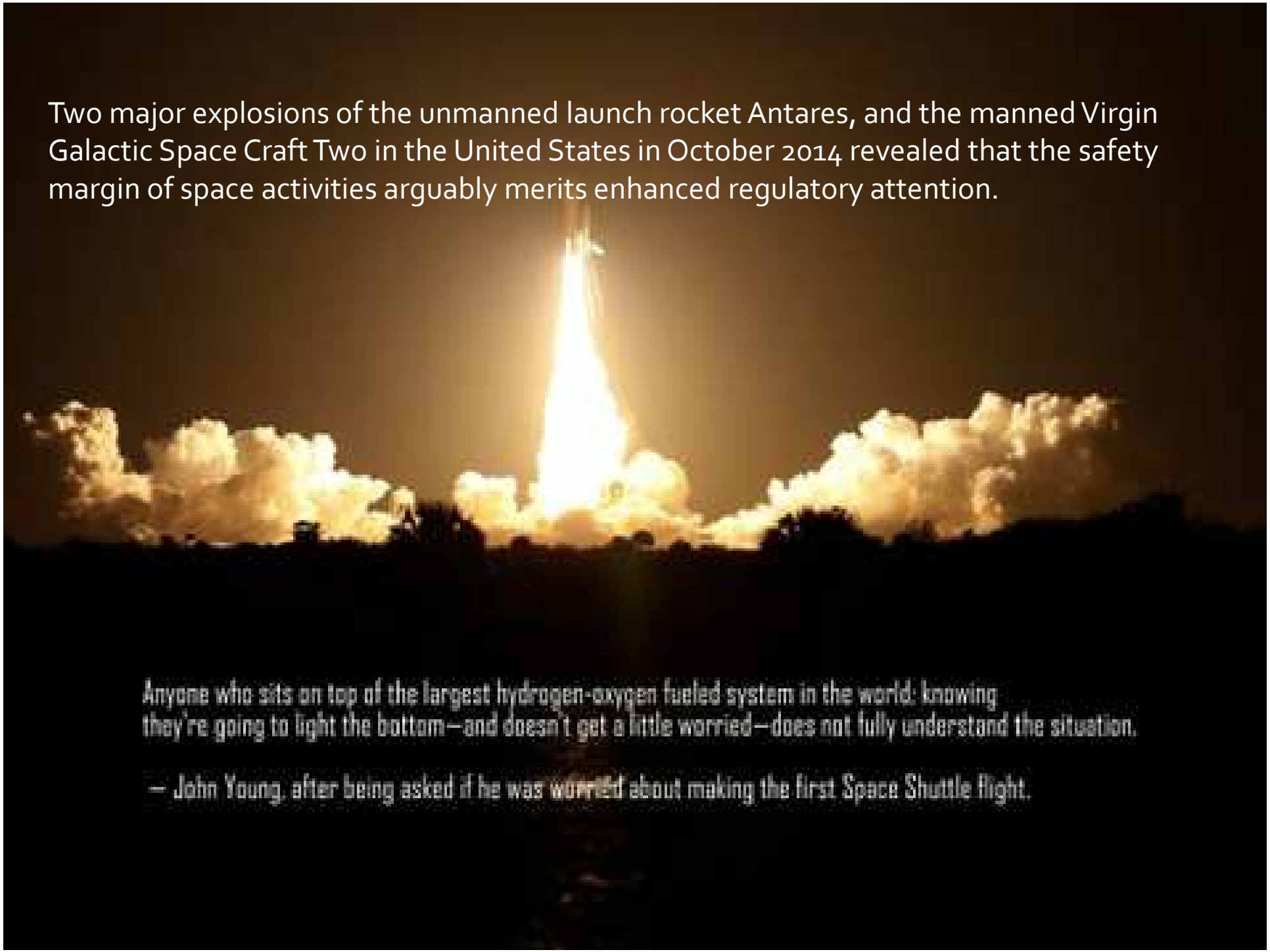
Two major explosions of the unmanned launch rocket Antares, and the manned Virgin Galactic Space Craft Two in the United States in October 2014 revealed that the safety margin of space activities arguably merits enhanced regulatory attention.



The Growth of Private-Sector Activity in Space

- Increasingly, governments are turning to the private sector to provide launch and satellite capacity.
- Private-sector commercial space activity is growing at a brisk pace, while governmental activity is declining. Global space activity of governments and private companies grew to $314 billion in 2013.
- Between 2012-2013, commercial space products and services revenue grew 7%; commercial infrastructure and support industries grew by nearly 5%; while government spending decreased by almost 2%.
- As private firms launch commercial space activities, the legal obligations and liability exposure of space-faring States proliferate as well, for under international law, States incur responsibility for their non-governmental activities in space.
- Two major explosions of the unmanned launch rocket Antares, and Virgin Galactic Space Craft Two in the United States in October 2014 revealed that the safety margin of space activities merits enhanced regulatory attention.

Importance of Licensing

- Legislation is important to provide certainty, stability and predictability of the legal regime essential for commercial investment.
- Licensing also is important as a governmental seal of approval to facilitate investment and financing of the space enterprise, and to assuage their customers' concerns about the safety of aerospace vehicles.
- Further, with the absence of an international regulatory regime addressing safety and navigation of aerospace vehicles, a growing number of space-faring States fill that regulatory void with domestic legislation.

The Outer Space Treaty of 1967

- States must carry on space activities in accordance with principles of international law;
- States bear international responsibility for national activities in space and on the moon and celestial bodies, including activities of both governmental and non-governmental entities;
- States must authorize and supervise the activities of its nationals in space;
- States that (a) launch, (b) procure the launch, or (c) from whose territory or facility an object is launched, are internationally liable for damage to another State or its national or juridical persons by such object in the air or in space;
- States on whose registry an object is launched must retain jurisdiction and control over the object and any personnel thereon;
- States must avoid harmful contamination and adverse environmental consequences from the introduction of extraterrestrial matter; and
- States must inform the UN Secretary General of the "nature, conduct, locations and results" of its activities in space.

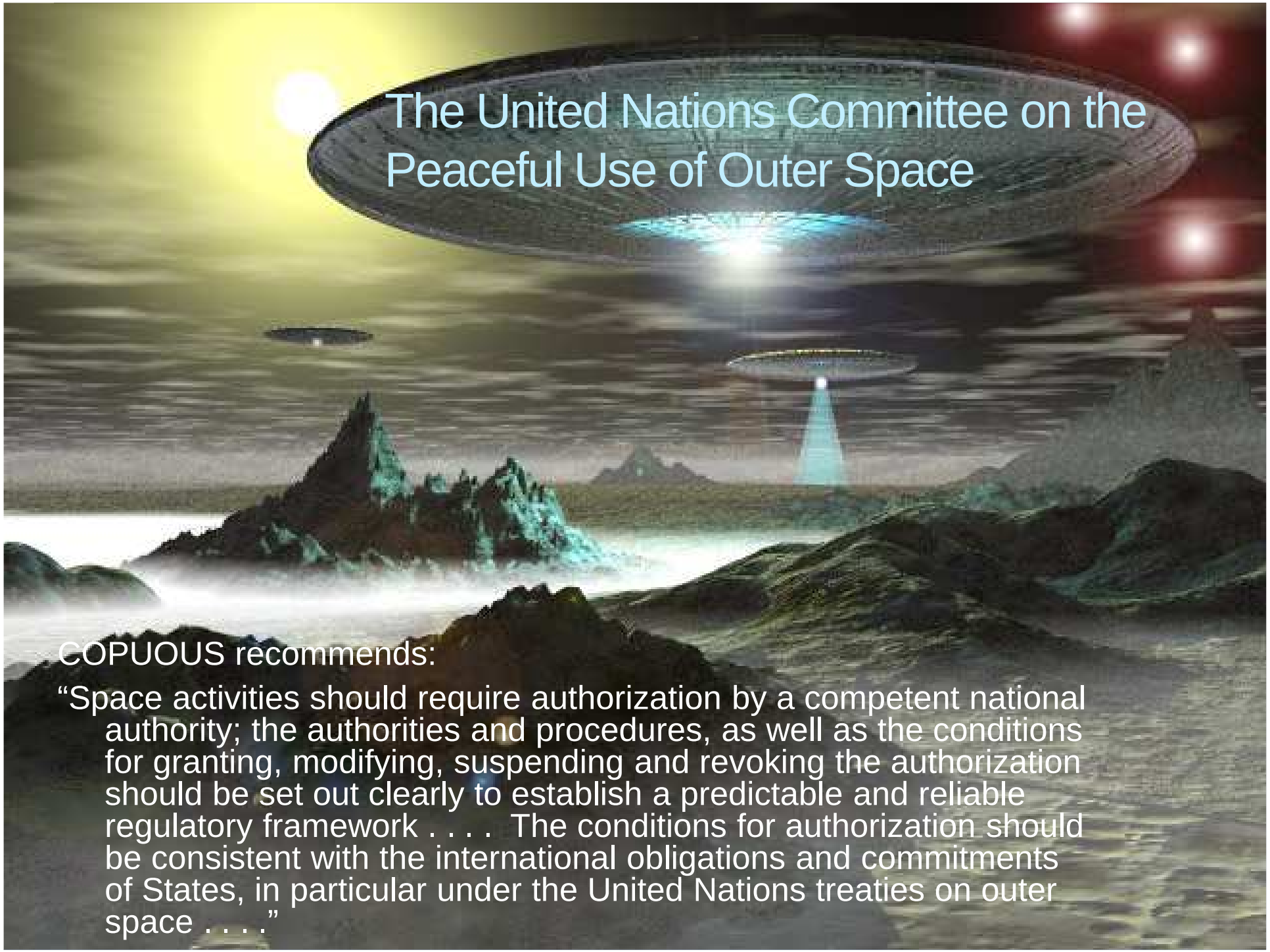
Manfred Lachs

"States bear international responsibility for any activity in outer space, irrespective of whether it is carried out by governmental agencies or non-governmental entities. This is intended to ensure that any outer space activity, no matter by whom conducted, shall be carried on in accordance with the relevant rules of international law, and to bring the consequences of such activity within its ambit…. States are under obligation to take appropriate steps in order to ensure that natural or juridical persons engaged in outer space activity conduct it in accordance with international law. States have taken upon themselves the explicit obligation that such activity will require their 'authorization and continuing supervision.'"

Liability Exposure of the State

- By ratifying or acceding to either the Outer Space Treaty of 1967, or the Liability Convention of 1972, the launching or launch-procuring State becomes potentially liable for damages caused by itself and its commercial launch sector.

- The State accepts absolute liability for damage on the ground or to aircraft in flight outside its territory when a launch takes place from its territory or facilities, or when it procures a launch from another State.
- The State incurs fault-based liability for damage caused in outer space.
- In addition to these multilateral conventions, additional legal obligations are imposed upon States through customary international law, an array of United Nations Security Council and General Assembly Resolutions, and a growing body of “soft law.”



The United Nations Committee on the Peaceful Use of Outer Space

COPUOUS recommends:

"Space activities should require authorization by a competent national authority; the authorities and procedures, as well as the conditions for granting, modifying, suspending and revoking the authorization should be set out clearly to establish a predictable and reliable regulatory framework . . . . The conditions for authorization should be consistent with the international obligations and commitments of States, in particular under the United Nations treaties on outer space . . . ."

State Regulation of Space Activities

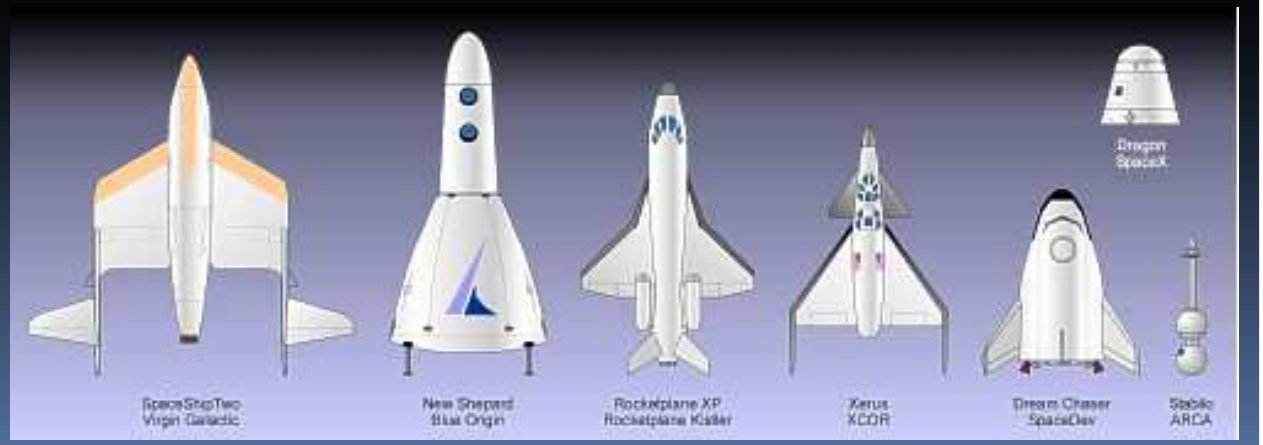
At least 26 States – about 14% of the members of the United Nations - regulate space activities.

Among the States that have enacted national space legislation are:

- Algeria,
- Argentina,
- Australia,
- Austria,
- Belgium,
- Brazil,
- Canada,
- Chile,
- the Peoples' Republic of China [PRC],
- Colombia,
- France,
- Germany,
- Italy,
- Japan,
- Kazakhstan,
- Netherlands,
- Nigeria,
- Norway,
- Russian Federation,
- South Africa,
- Republic of Korea [South Korea],
- Spain,
- Sweden,
- Ukraine,
- United Kingdom,
- United States, and
- Venezuela.
- Hong Kong also regulates space activities.

Licensing

- Governmental oversight of space activities is essential to protect public safety, property, and the environment, and to fulfill State obligations under international law.
- Licensing is the bedrock of governmental regulation of commercial space activities.



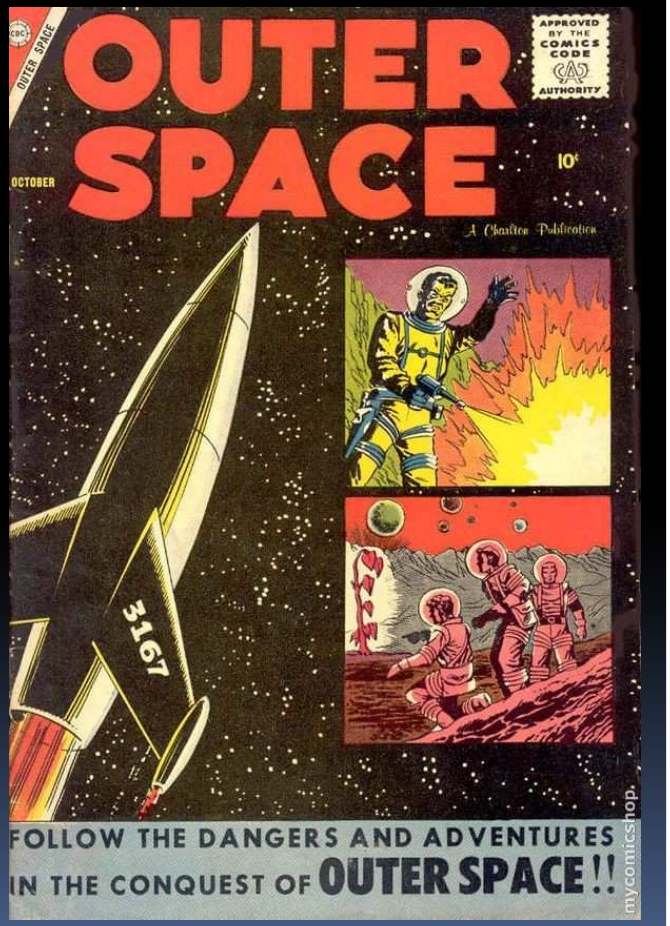
Examples

- In Belgium a natural or legal person must obtain prior authorization to engage in space activities in zones under the jurisdiction or control of the State, or using installations or property of the State, or from an area under the jurisdiction or control of Belgium.
- The Netherlands requires licensing for launching, flight operations or guidance of space objects performed in or from Dutch soil or a Dutch ship.

Technical and Financial Qualifications of Applicants

Example:

- Australia has promulgated an elaborate and detailed licensing statute.
- It requires that the launch facility, launch vehicle, and flight path be effective and safe.
- Applicants must submit design and engineering plans of the launch vehicle.
- Applicants must identify their organizational structure and financial fitness, their program management plan, their technology security plan, and their emergency plan.



Liability, Insurance & Indemnification Requirements

Typically, statutes require that the licensee carry adequate insurance to cover death, injury or property damage, and indemnify the State should it have to pay damages.

In order to promote commercial development of space, some States cap liability, in effect backing such development with the financial resources of the national treasury.

EXAMPLE:

- In Korea, a person who launches is liable for any damages caused, and must carry sufficient insurance to cover that liability as prescribed by the Ministry of Science and Technology.
- The launching party must pay compensation for damage caused by launch activities, except in case of armed conflict, hostile activity, civil war or rebellion, in which case he shall only be liable for damage caused by his willful misconduct or negligence.
- One who procures a launch permit must insure against third party liability.
- However, the amount of liability is limited to 200 billion won (approximately US $189 million).

Environmental Protection

Several States use the licensing process to address concerns about environmental contamination of outer space or the Earth.

EXAMPLES:

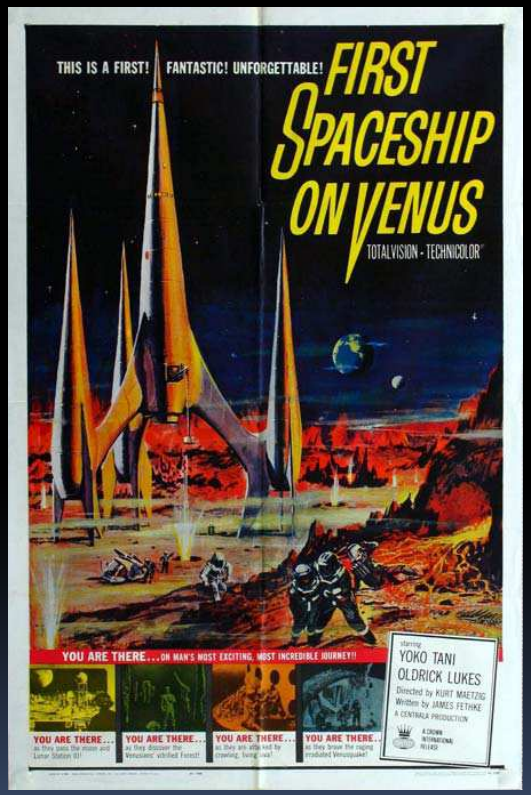
- Austria places particular emphasis on space debris mitigation in its licensing process. It insists upon compliance with the "state of the art" and "internationally recognized guidelines for the mitigation of space debris".
- Argentina requires that the operator provide information on environmental precautions taken, including mechanisms for placement of the space object in a transfer orbit at the end of its useful life, and identify the anticipated date of its recovery, disintegration or loss of contact.

Other Conditions Imposed Upon Licenses

EXAMPLE:

In the Netherlands, regulations and restrictions may be imposed for the following purposes:

- a. the safety of persons and goods;
- b. protection of the environment in outer space;
- c. financial security;
- d. protection of public order;
- e. security of the State;
- f. fulfillment of the international obligations of the State.



License Duration

Most States that regulate commercial space activities require a license for each individual launch. However, several issue licenses for longer periods of time.

EXAMPLE:

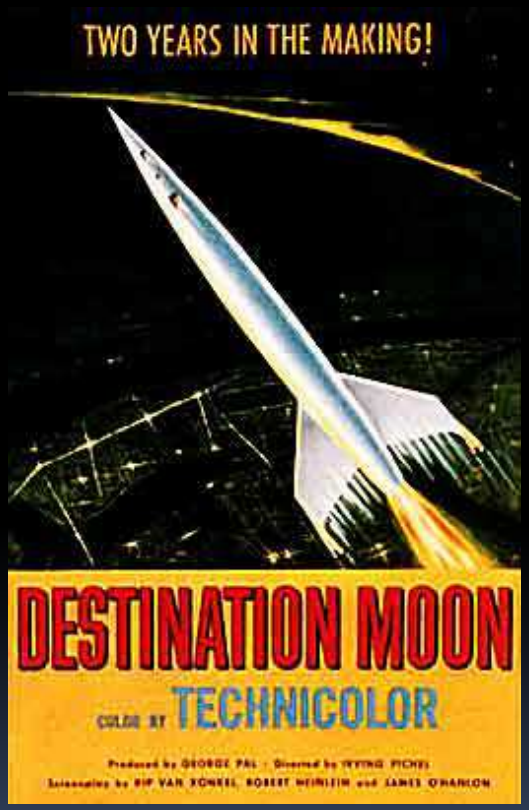
- In Russia, licenses are valid for not less than three years.
- They are valid only for the type of space operations specified, and may not be transferred.

Pre-Launch Requirements

Several States impose additional obligations upon licensees prior to launch.

EXAMPLE:

- In China, nine months prior to the scheduled launch, the applicant must submit relevant legal and technical documents to the Commission of Science, Technology, and Industry for National Defense [COSTIND].
- The applicant must establish compliance with national environmental laws and regulations, proof of prevention of pollution and space debris, a safety design report relevant to the project, and supplementary information concerning the reliability of Safety Critical Systems .



Operational Restrictions

In order to reduce the likelihood of personal, property or environmental damage, a number of States impose operational restrictions on the launch of space objects.

EXAMPLE:

- In Ireland, a rocket may not be operated without a license.
- Seven days prior to launch, the Operating Standards Department of the Irish Aviation Authority must be informed of the identity of the persons responsible for the operation, the number, size and weight of each rocket, the altitude at which it will be operated, the location, date and time of the operation.
- In Ireland, rocket launches are prohibited if they create a potential collision hazard with an aircraft, involve operation in controlled space, within eight kilometers of an airport, at an altitude where horizontal visibility is less than eight kilometers, into a cloud, within 300 meters of any person or property not involved in the operation of the rocket, or at night.

Registration

So as to comply with their international obligations under the Registration Convention, several States require that all space objects launched by its corporate or individual citizens be registered.

Argentina, Australia, Belgium, the Peoples Republic of China, France, Japan, Kazakhstan, the Netherlands, the Republic of Korea, the Russian Federation, Spain, Sweden, Ukraine, the United Kingdom and the United States are among them.

Enforcement

To give their regulatory oversight teeth, many States impose enforcement mechanisms in their national space legislation. Sanctions such as license suspension or revocation, as well as fines and imprisonment, are important regulatory means to ensure compliance with regulatory obligations.

EXAMPLES:

- *Suspension & Revocation:* South Africa may amend, suspend or revoke a license if any condition imposed thereon was violated, or if the operations pose an unacceptable safety risk. In Sweden, the license may be withdrawn if license conditions are disregarded. In the United Kingdom, a license may be suspended or revoked if a condition imposed thereon is not complied with, or such action is required for public health, or national security, or in order to comply with international obligations.
- *Fines & Imprisonment:* Japan may impose a fine not to exceed ¥200,000 (approximately US $ 1,900) for failing to file a report or filing a false report, failure to obtain required authorization or approval from the Minister of Education, Culture, Sports, Science and Technology, failure to register, conducting unauthorized activities, or launching satellites without required insurance. In France, the administrative authority may at any time give instructions or require any measures deemed necessary to protect the safety of persons or property, or to protect the public health or the environment. Fines of up to €200,000 (approximately $257,000) may be imposed for launching a space object without authorization. In Sweden, violations of the national Space Laws may result in imprisonment of up to one year.

Conclusions

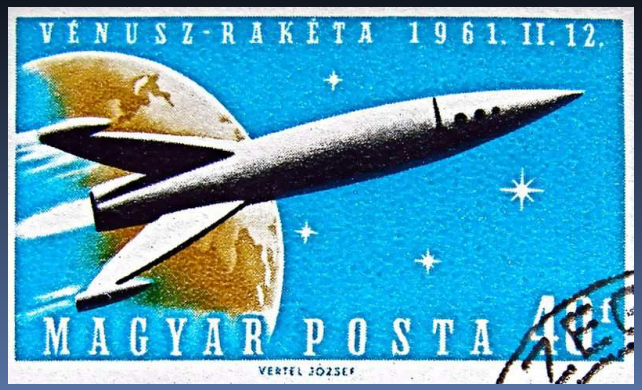
Three and a half decades have elapsed since the last international multilateral Space Law convention was drafted.

Given the dearth of international regulatory standards, particularly governing aerospace safety and navigation, States would be well advised to establish regulatory institutions to oversee space activities in order to:

- enhance safety,
- protect their citizenry and their territory and property from injury or environmental harm,
- cover the costs of catastrophic loss when it occurs and thereby conserve national wealth, and
- provide the stability, predictability and certainty essential for private commercial investment.

Many national space laws focus on common issues through the vehicle of licensing, including:

- the technical and financial qualifications of applicants,
- liability and indemnification,
- environmental protection,
- operational restrictions, and
- sanctions and enforcement.



Conclusions

Although a growing number of States are promulgating national Space Law legislation, and although, many such laws focus on common issues, there is little harmonization between the approaches taken to licensing and regulation.

Some States (e.g., Australia and the United States) have enacted comprehensive and elaborate regulatory statutes, while others (e.g., Ireland and Norway) have promulgated rather terse laws. Many more (e.g., India and Switzerland) have yet to enact any legislation at all on the subject.

States should attempt to harmonize their laws with other States, so that global uniformity might be enhanced, and flag-of-convenience type forum shopping discouraged.

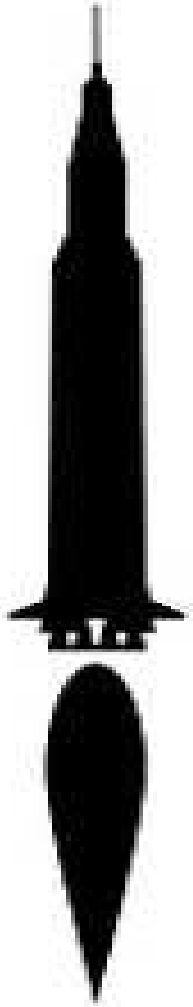
Conclusions

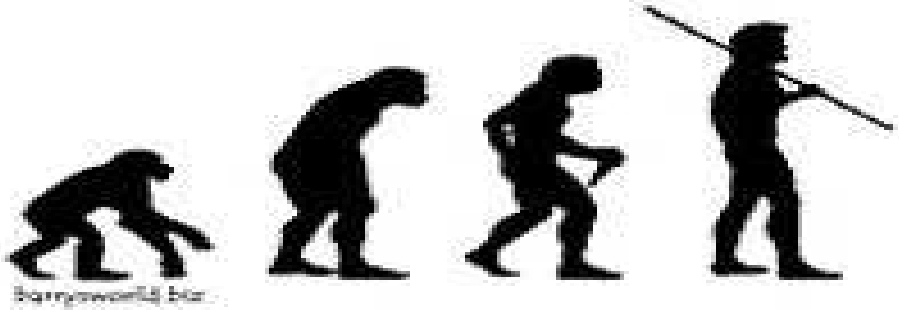
So as to encourage commercial development of space, the regulatory burden and liability risk exposure should not be onerous. During the embryonic and developmental period of commercial space activity, liability should be capped.

But it would be shameful if commercial space activities were attracted to the jurisdictions with the lowest taxes, and lowest cost regulatory structure, at the expense of safety and environmental harm.

Eventually, one would hope, the growth in domestic regulation might influence development of international law, and motivate the international community to establish harmonized regulatory standards, as it has done in the field of aviation safety and navigation with the promulgation of the Chicago Convention of 1944.

Questions?





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