Chapter 2
National Space Legislation

Overview

Space activities have traditionally been limited to governmental entities. In the early decades of the Space Age only states had the technical and financial capabilities to carry out the exploration and use of outer space. Private actors were long excluded from it. On one side, due to strategic and political reasons, governments were hesitant to allow anyone other than their own military or governmental space agencies to be involved in space-related affairs. On the other side, the enormous financial commitments required to undertake any kind of operation in space deterred potential private investors from entering the space sector. Furthermore, the legal framework to regulate private activities in space was largely inadequate.

However, in the 1980s and 1990s private operators started entering the space market. This was mainly due to the need for states to find additional sources to finance space activities. Indeed, already in the late 1970s, governments started reducing their space budgets, and other, preferably private, financial means had to be secured to support space projects.[67] Additionally, technological advancements and the reduction of costs contributed to attract private investors towards outer space.

Initially, only public–private partnerships, for example long-term cooperation between the public and private sectors to execute projects typically in the hands of the public sector, were organized. Later, entirely private undertakings appeared, although up to now they remain a limited number.

Importantly, the privatization of space activities has gone hand in hand with its commercialization. Broadly speaking, the term "commercialization" refers to making money and profits. In the context of space, it can be intended as the use of equipment sent into or through outer space to provide goods or services of commercial value.

The United States was the first country to embrace the commercialization of outer space, mostly after the collapse of communism in the early 1990s. Nowadays, thanks to the increasing civilian application of space technologies and the

F. Tronchetti, *Fundamentals of Space Law and Policy*,
SpringerBriefs in Space Development, DOI: 10.1007/978-1-4614-7870-6_2,
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globalization of the economy, the privatization and commercialization of space are becoming key components of modern space activities.

The growing privatization and commercialization of space activities created new legal challenges to space law. In particular, that of adapting a legal framework developed having in mind states as the main space actors. It soon emerged that the formulation of national space legislation was the most suitable instrument to achieve this goal.[68] This choice was largely due to the consideration that international space law requires states to ensure that national space activities are consistent with the fundamental space law principles. Thus, it seemed more logical for each state to individually regulate the involvement of their nationals in space undertakings rather than developing new internationally agreed rules.

Several states have so far enacted national space laws and regulations.[69] These tend to differ in their scope and content. The differences are the consequence of the characteristics, extent and degree of space activities effectively being carried out under the supervision of a particular government.

The following sections are organized as follows. First, the analysis of why national space legislation is enacted and the issues that such legislation normally deal with will be provided. Second, a few examples of national space legislation will be given. And finally, specific areas related to space activities from a national perspective, namely export control, will be addressed.

Enacting National Space Legislation: The Issues

Several reasons can be enumerated to explain why a growing number of states have been enacting national space legislations. First, activities in outer space are inherently hazardous. In order to prevent harm caused by space operations carried out by private entities, a mechanism to supervise and control them is needed. Second, states need to make sure that private subjects, while operating in space, do not violate a nation's international obligations or undermine its national security and foreign policy interests. Third, the international legal regulations for space activities and, in particular, the Outer Space Treaty, the Registration Convention, and the Liability Convention, impose numerous obligations on governments that cannot somehow be transferred to private entities. These obligations make it necessary for countries to adopt national space legislation.

Authorization and Supervision of National Space Activities

Article VI of the Outer Space Treaty is the most relevant provision of the U. N. space treaties concerning the participation of private operators in space activities.[70] It creates a special link between private entities and their states, by making the latter internationally responsible for the space activities of the former.

Although not directly requiring the adoption of national space legislation, its practical implementation has led several states to do so.

The first sentence of Article VI of the Outer Space Treaty reads as follows:

> 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.

This sentence makes clear that nations bear international responsibility for national space activities, both carried out by governmental agencies and non-governmental entities. In the context of Article VI, the concept of "responsibility" has a different meaning than the one normally given to it under general international law. Normally, a state bears 'direct responsibility' only for acts somewhat directly attributable to it.[71] Instead, under Article VI, a state is responsible for all space activities carried out by private entities falling under its jurisdiction. Furthermore, states must ensure that private space activities are conducted in compliance with the obligations laid down in the OST.

The second sentence of Article VI explains how states can actually perform this task, as it provides that: "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." Accordingly, states must authorize and continuously supervise the space activities of non-governmental entities. Thus, it is evident that, while private subjects are entitled to carry out activities in outer space, they may only do so if they receive authorization from their state.

To conclude, in order to fulfill their international obligations, states must set forth a mechanism enabling authorization and supervision of non-governmental space activities.[72] Article VI does not directly require the enactment of national space legislation, but ultimately this has emerged as the optimal solution to govern the authorization and supervision of private activities in outer space. Finally, it should be stressed that the scope of national space legislation is not necessarily limited to the implementation of Article VI of the Outer Space Treaty, but it may serve other purposes, such as making sure that private activities comply with safety standards and rules on debris mitigation and prevention as well as ensuring that they do not interfere with security and foreign policy interests of a state.[73]

The Registration Convention

International space law requires countries to register objects launched into outer space at the international and national level. This requirement, first laid down in U. N. General Assembly Resolution 1721 of 1961 and then substantially repeated

in Article VIII of the Outer Space Treaty, has been regulated in detail by the 1975 Registration Convention.

The Registration Convention indicates the type of information that shall be provided by a state for its inclusion in the U. N. registry. In order to be able to send the required information, a state needs to put in place a system establishing how and when a space operator will furnish these data. It is only upon receipt of such data that the state is in the position to transmit them to the U. N. Secretary. Normally, such a system is set up in specific provisions of national space law. In addition, a national registry must be established, the contents of which remain at the discretion of the nation. The establishment and functioning of the national registry are also provided for in national space legislation.

The Liability Convention

International space law establishes that a state is internationally liable for damage caused by the objects it has launched in outer space. This principle is laid down in Article VII of the Outer Space Treaty and further elaborated in the Liability Convention.

National space legislation cannot modify in any way how a state's international liability is regulated in the space treaties. It is, however, interesting to see how it organizes the relation between a state and the non-governmental entities in the context of liability.[74] The state that has authorized the space activities of a non-governmental entity remains primarily liable for the damage caused by a space object operated by such an entity. Nevertheless, usually a government establishes a right of recourse against that entity if the former has paid compensation for damage caused by the latter. National space legislation normally incorporates this principle and lays down the prerequisites and conditions according to which the right of recourse is activated and exercised. Furthermore, in order to provide guarantees that the amount paid by the state will eventually be recoverable, national space legislation might force non-governmental entities to obtain insurance covering the launch or the operation of a space object.

In the United States this system has been organized as follows.[75] The issuance and transfer of launch and re-entry licenses for commercial launches is the responsibility of the Office of Commercial Space Transportation of the Federal Aviation Administration (FAA). License applicants, apart from obtaining safety approvals from the FAA, are obliged to take out insurance or otherwise prove their ability to compensate for liability claims brought by third parties or the U. S. government for damage to government property resulting from the licensed activities.

The amount to be covered by the insurance is the "maximum probable loss," which is determined by the FAA. In relation to third party claims, this amount should not exceed $500 million or "the maximum liability insurance available on the world market at a reasonable cost,"[76] while for governmental claims the cap is $100 million

or the maximum insurance available at a reasonable cost.[77] In case a third party is successful in bringing a claim that tops the licensee's insurance, the U. S. government will cover the additional amount up to a total claim of $150 million.[78]

This system, based on the limited liability of the licensee, insurance, warranty of the state and "maximum probable loss," has influenced the drafting of several national space legislations adopted in recent years. For example, the French national space act of 2008[79] provides that any operator shall have and maintain, for the period of its space operations, insurance or another form of financial guarantee.[80] The operator will be absolutely liable for damage caused on the surface of Earth or in airspace by a space object connected to an authorized activity.[81] When the French government has paid compensation pursuant to its international liability, it shall have the right to make a claim for indemnification by the operator.[82] However, the latter may benefit from a government guarantee that amounts to € 60 million.[83]

Selected National Space Legislative Actions

The following section gives an overview of some of the most significant national space legislative actions. A comprehensive analysis of all the national space laws adopted up to this moment goes beyond the purpose of this book.

The United States

The United States has the most elaborate national space legislation in the world.

The development of U. S. national space law has been closely linked with the actual conduct of space activities and with technological advancements. Every time technology enabled a certain space activity or the geo-political and economic situation moved in a new direction, a new piece of space legislation was adopted in the United States. This has been the case for the adoption of legislation on private space launches, remote sensing and commercial spaceflights.

In 1958, NASA was established. It was put in charge of running the U. S. civilian space program. This decision was highly significant, as it took the U. S. civilian space program out of the hands of the military. The act that established NASA has been amended several times in order to incorporate elements of contract, tort and insurance law, indemnification and intellectual property.

In 1984, the Commercial Space Launch Act laid down a licensing regimen for private space launches. Its goal was to favor, facilitate and support commercial space launches by the private sector. The act deals with the issuance and transfer of launch and re-entry licenses issued by the FAA. This system, including the related provisions on insurance requirements and compensation for third-party liability, has been previously described, so it is not addressed in detail here.

The 1992 Land Remote Sensing Policy Act regulates the licensing procedures for private remote sensing activities. The act recognizes the fact that in this sector, government funding is still needed and that full commercialization is not reachable in the near future. The act is based on the idea that remote sensing data are important tools for several subjects and purposes and should, therefore, be made available easily and at low cost. On the other hand, it recognizes the commercial value of remote sensing data, by means of a data protection plan, and imposes restrictions based on national security considerations.

The Commercial Space Launch Amendments Act of 2004 introduced a number of provisions aimed at regulating the recent phenomenon of space tourism. The act requires commercial suborbital flight operators to make several written informational disclosures in order to obtain the informed consent of customers, the so-called 'spaceflight participant.' This is a necessary pre-condition to establish that the spaceflight participant accepts the risk inherent in the spaceflight and that he or she is not entitled to the benefit of liability insurance coverage. In 2012 a further amendment was enacted into U. S. law to extend the provisions for experimental licensing arrangements for commercial spaceplane launches.

Apart from these acts specifically addressing space activities, several existing laws from other areas are applicable to space activities. For example, the 1934 Communication Act as amended was declared to be relevant to private operators of space communications activities. Furthermore, there are many regulations that specify more concretely the applicable law to some space activities, such as commercial human spaceflight, remote sensing and U. S. participation in the International Space Station.

As it might appear from the above short overview, U. S. national space law is in fact a rather complex set of laws and regulations applicable to various space activities. In order to make U. S. space law more coherent and easily accessible in 2010 the House of Representatives passed a bill that introduced a new Title 51—"National and Commercial Space Program"—that collects together all existing space laws without modifying them.

The Russian Federation

During the Soviet Union's tenure no dedicated national laws regulating space activities existed. Instead, special resolutions and decisions of government and political bodies constituted the legal basis for operations in outer space. Only after the collapse of the USSR did the process of building up a properly structured national space legislation start in Russia.

The Federal Law on Space Activity of August 20, 1993, is the fundamental document of Russian space law. It gives the right to regulate space activities to the president of the Russian Federation, the Space Agency of the Russian Federation (Roscosmos), and the Ministry of Defense. The Law on Space Activities establishes the procedure governing authorization for all space activities in the Russian

Federation both for scientific and socio-economic purposes. An implementing regulation contains more detailed provisions on the kind, issuing, validity, suspension, and withholding of space licenses. Roscosmos and the Ministry of Defense are empowered to ensure that authorized activities comply with safety standards and do not constitute a threat to the environment.

With regard to liability, the Law on Space Activities sets forth a system of compulsory and voluntary insurance. Space operators are under an obligation to obtain insurance to cover damage to the health and life of cosmonauts, space infrastructure personnel and liability for damage caused to the life, health, or property of third parties. Voluntary insurance may be obtained to cover damage to space equipment and the risk of loss or damage to it.

With respect to registration, any Russian organization that is exploiting a space object or is conducting or procuring its launch must provide Roscosmos with related information one month prior to the actual launch. Seven days following the launch, information about the launched space objects must be transmitted to Roscosmos. After enlisting in the national registry, Roscosmos passes the information to the Ministry of Foreign Affairs, which communicates it to the U. N. Secretary General for inclusion in the U. N. Register.

France

Despite being one of the major space-faring countries France did not have national space legislation for a long time.[84] Until June 2008, French space activities were regulated by general civil, administrative and criminal law, and by specific laws applicable to certain activities, such as broadcasting and telecommunication.[85] In June 2008 France passed the French Law on Space Operations, which sets out a regimen regulating authorization and control of space operations pursuant to France's international commitments.[86] In particular, the act: (a) establishes under which conditions a private operator may obtain an authorization to carry out space activities; (b) separates liability between the state and non-governmental entities; and (c) foresees sanctions to be imposed in case of non-compliance with authorization requirements.

A private entity is granted authorization to perform space activities only after the relevant state authority has reviewed its moral, financial, and professional qualifications and verified its compliance with safety, health and environmental standards. Authorization will not be given if the planned activity is likely to compromise national security and France's international obligations. Furthermore, authorized operators are obliged to comply with debris mitigation and prevention guidelines. The provisions concerning liability and insurance requirements have been previously described, so they are not addressed here.[87]

The national registry of space objects is kept by the Centre National d'Ėtudes Spatialies (CNES). The procedures governing the functioning of this registry are laid down in an implementing decree.

The French Space Act was certainly inspired by the U. S. Commercial Space Launch Act, but it integrates it with some European peculiarities. For example, its scope and application are broader than the U. S. model and covers not only launches but also other kinds of space activities as well as registration. In this sense, the French Space Act may become a model for other European countries willing to develop a national space act.

Belgium and The Netherlands

Belgium and the Netherlands are two countries that, despite not being space-faring ones, have recently adopted national space laws. This choice has been determined, on one hand, by the increased number of space activities by their nationals as well as from their territories, on the other hand by the need to properly regulate and supervise these activities and ensure compliance with international obligations.

The Belgian Law on Activities of Launching, Flight Operations or Guidance of Space Objects was enacted on June 28, 2005. The Belgian Space Act establishes a legal regimen to authorize and supervise space activities performed under Belgian jurisdiction,[88] the creation of a national registry for space objects,[89] and the avoidance of liability that may arise pursuant to Article VI of the Outer Space Treaty.[90] The act has been supplemented by a Royal Decree implementing certain provisions of the law, which was adopted March 19, 2008.[91]

The Dutch Law Incorporating Rules Concerning Space Activities and the Establishment of a Registry for Space Objects was adopted by the Dutch Parliament on January 25, 2007. The Dutch Space Law regulates registration, authorization, and supervision, and gives the possibility of redress in cases of government liability for damage caused by space activities. It imposes compulsory insurance as a necessary condition for obtaining a license.[92] The amount of the insurance is to be determined by the Minister of Economic Affairs, who, in making this decision, will take into account the maximum possible cover for liability arising from space activities and the sum likely to be covered by insurance.[93] If the state is obliged to pay compensation under Article VII of the Outer Space Treaty or the Liability Convention, it is entitled to recover the sum, in full or in part, from the party whose space activity has caused the damage.[94] The licensed operator shall cover the damage caused by its space object only up to the sum insured.[95]

The Belgian and Dutch examples show that the importance of national space legislation also for smaller countries with a limited space industry. As a consequence of the privatization and commercialization of space activities, these states are progressively entering the space arena and need a solid legal framework to accommodate such a development.

Export Control

All countries protect their investments and their intellectual properties with the goal of maximizing their return on these investments. However, this does not mean that technology is not transferred from one entity to another. Such a transfer can also involve sensitive exports and goods. This type of transfer raises serious political and strategic issues, particularly when the technology is used by the military. In this cases, governments exercise two kinds of control: (1) they protect specific technology or knowledge; and (2) they prohibit the export of certain knowledge and/or technologies to specific state.

Technology can be described as industrial know-how, resulting from the combination of knowledge, human resources and technical management, necessary to develop new equipment or expertise for certain purposes. Inventions are protected through a series of governmental measures, such as patents, licenses, and trademarks, that are usually referred to as intellectual property rights.

The U. S. Approach

In the United States,[96] sensitive international technology transfer is controlled through a strict licensing process. International Traffic in Arms Regulations (ITAR) is the name for a set of U. S. government regulations that control the export and import of defense-related articles and services that are included in the U. S. Munitions List (USML).[97] ITARs are interpreted and enforced by the Department of State Directorate of Defense Trade Controls (DDTC).

All U. S. manufacturers, exporters, and brokers of defense articles, defense services, or related technical data, as defined on the USML, must register with the U. S. Department of State. Through this registration the U. S. government obtains information on who is involved in manufacturing and exporting activities. Registration does not confer any export rights or privileges but is a precondition for the issuance of any license or other approval for export.

Pursuant to ITAR regulations information and material concerning defense and military-related technologies (for items listed in the U. S. Munitions List) must only be shared with and sold to Americans, unless authorization from the Department of State is granted or a special exemption is used. Under ITAR, a "U. S. person" who wants to export USML items to a "foreign person" must obtain authorization from the U. S. Department of State before the export can take place.

ITAR also includes clauses on retransfer of USML items by a foreign persons. Accordingly, the "Retransfer" (also called "Re-export") of items on the USML by foreign persons is prohibited unless specific authorization to do so is given under the relevant export authorization.

U. S. persons (including organizations) can face heavy fines if they have, without authorization or the use of an exemption, provided foreign (non-U. S.)

persons with access to ITAR-protected defense articles, services or technical data. Significantly, since 1999 the U. S. government has substantially increased action against organizations and individuals responsible for breaches of ITAR. The most notable enforcement action was the $100 million penalty applied to ITT Corporation as a result of the unauthorized Retransfer of night vision technology to the People's Republic of China in 2007.

ITAR has a huge impact on U. S. space activities and, specifically, on the international trade of space technologies and commodities; indeed, since 1999[98] all satellites, launch vehicles and related items have been transferred to the U. S. Munitions List.[99] Consequently, all commercial communication satellites (comsats) are now subject to ITAR.

One might wonder what are the economic implications of such a situation. It has to be kept in mind that commercial communications satellites are an important source of profit for the U. S. space industry. This type of satellite requires a large capital investment up front that is shared between manufacturers, launchers, and insurers. Commercial satellite operators choose their launch service providers on the basis of technical capability, cost, reliability, insurance rates, and scheduling. All things being equal, a commercial satellite operator not subject to contracting restrictions will launch on the least expensive vehicle.

The U. S. satellite industry argues that ITARs negatively affect its interests; in particular, it slows down and complicate a U. S. satellite company's plans to deliver parts or a complete spacecraft to a foreign customer. Furthermore, ITAR makes it very difficult, expensive and time-consuming for foreign entities to buy U. S.-manufactured satellites and components.

Thus ITAR is accused of sharply cutting into the U. S.'s share of the satellite manufacturing business worldwide. A study by the FAA demonstrates that in the period from 1999 to 2006 a substantial decline in the manufacturing of launch vehicles, satellites and ground equipment, has occurred. For several years, the satellite industry has been working to convince federal lawmakers that the executive branch, not Congress, should have the discretion to decide how to administer satellite exports and that, eventually, ITAR restrictions on commercial satellites should be removed. Interestingly, in December 2011 the House of Representatives passed a bill, H.R. 3288, with a clause to remove ITAR restrictions on commercial satellites. The specific wording for the purpose of the bill: "To authorize the President to remove commercial satellites and related components from the United States Munitions List subject to certain restrictions, and for other purposes." It remains to be said what will be the follow up to the adoption of this bill.

The European Export Control Regulation

European policy on export control[100] is based on the distinction between export items in either conventional armaments (e.g., munitions) or dual-use goods. Conventional armaments lay outside the purview of the European Union, and

member states may exempt the manufacturing and trade of arms from the rules of the common market.[101] In short, "each Member State sets up its own policy and procedures for the export of conventional arms." On the contrary, dual-use goods fall within EU purview; consequently, the EU is empowered to oblige all member states to request licenses "to export the items on the list and to have appropriate penalties for violations as well as effective systems for enforcing the relevant legislation."[102]

Such empowerment is given to the EU by Council Regulation No.428/2009.[103] This regulation provides for a common community export licensing system, a control list, and a general export authorization procedure.

Dual-use items are cataloged in Annex I and Annex IV of Council Regulation No. 428/2009. All dual-use items listed in Annex I require export authorization for export from the EU. Annex IV lists items that are deemed to be so sensitive that they need authorization even before they are transferred from one EU state to another.

Comsats and their associated components are categorized as dual-use items under Annex 1. Thus, the export of comsats needs authorizations from the EU.[104] Such authorization is given by the appropriate authorities of the member state where the exporter is located.[105] Exporters are requested to provide the authorities with all relevant information needed for their applications for individual and global export authorization. In particular, information is required on the end user, the country of destination and the end-use of the item exported. Clearly, when deciding about granting an export authorization, member states take into account several factors including the obligations arising from relevant international non-proliferation regulations and export control arrangements, and considerations of national foreign and security policy.



http://www.springer.com/978-1-4614-7869-0

Fundamentals of Space Law and Policy

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2013, XVIII, 107 p. 8 illus., 7 illus. in color., Softcover
ISBN: 978-1-4614-7869-0