

**Commercial Space Law: Practical Examples
Relating to Contracts, Insurance and Finance**

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Introduction

The evolution of space law has followed the development of space exploration and use. The commencement of the space age in the 1950s and the early 1960s involved the high-risk activity of launching objects and persons into sub-orbital space and eventually into earth orbit. Exploration of the Moon and inter-planetary scientific missions followed in the late 1960s and the 1970s. This initial period of exploration witnessed the completion of the major international space law treaties and conventions, which established the basic legal principles of space activity.

In the 1960s, the first commercial applications involved the transmission of long distance telecommunications from point to point around the earth. Closely following was the continuing development of an international telecommunications regulatory framework applicable to satellite transmissions.

The hallmark of space activities in the 1980s and 1990s is the increasing commercialization in space transportation, remote sensing, telecommunications, mobile

and radio-determination services and materials processing. Building on the foundation of international space law, a growing body of national commercial law is emerging.

The following examples are intended to demonstrate how international legal principles applicable to space intersect with practical commercial law in routine space-related business.

As may be expected, in the day-to-day business world of purchasing satellites, leasing transponders, insuring launches or financing telecommunications projects, not a lot of consideration is given to international space treaties. As with other areas of the law, what we are taught in law school about international law does not always find a direct application in the practice of law. Nevertheless, it is not possible to advise clients involved in commercial space projects without proper consideration of basic principles of international space law. The application of space law treaties arises, at times, in the most unexpected of circumstances.

The Intersection of International Space Law and Commercial Law

Contracts

In what can only be described as a unique and unprecedented experience, Sotheby's, the auction house, conducted the first auction dedicated to the sale of Russian space history memorabilia on December 11, 1993, in New York.

During the course of the day, objects ranging from Sergei Korolev's slide rule -- used by the first general designer of the Russian space program -- to an entire Soyuz space capsule, were auctioned off for prices well-exceeding their estimates.

Interestingly, one object was the Lunokhod-1 lunar rover, comprising a 756 kilogram main body covered with a cap containing solar cells, eight independently driven wire wheels, internal nuclear generator, surface sampling apparatus and various other control systems, telescopes, computers, radio and television transmitters and antennas. Sotheby's estimate for this object was \$5,000. It sold for \$60,000.

The fascinating feature of this sale was that the Lunokhod rover had been launched on November 10, 1970 and is still in the Mare Imbrium, on the Moon. To my knowledge, this transaction constituted the first sale of an object on the surface of a celestial body, other than earth.

In an addendum to the publication of the auction catalogue, Sotheby's issued the following notice to prospective purchasers:

"Neither Sotheby's nor the consignor has any obligation, now or in the future, to deliver possession of the lot. Since the lot is located on the Moon, and since laws currently in existence, or which may come into effect in the future, may develop or change, notwithstanding the Conditions of Sale, while title to the object is passing as of the date of sale, **SOTHEBY'S IS ONLY CONVEYING THE CURRENT TITLE RIGHTS OF THE OWNER, AND MAKES NO ASSURANCES, WHETHER EXPRESSED OR IMPLIED, IN RESPECT OF FUTURE CLAIMS OF TITLE, BY SALVAGERS OR OTHERWISE.**"

As exploration and use of the planets and other celestial bodies increase, eventually a legal practitioner will be called on to issue a legal opinion as to the validity and binding effect of the sale of objects in space and the effect of the Moon Treaty and the Outer Space Treaty on such commercial transactions. While these

Treaties provide the framework for the exploration and use of space and basic rules of conduct, no specific regime exists to regulate commercial activities in general.

Launch services agreements have evolved over a number of years to a high degree of standardization among virtually all major launch services providers such as Arianespace, China Great Wall Industry Corporation, General Dynamics, Martin Marietta and McDonnell Douglas. Two principal international law issues that arise in the commercial sale of launch services are international liability and registration.

Purchasers of launch services are particularly concerned about third party liability arising from a failed launch. Allocation of risks -- inter-party, inter-participant and third party -- are dealt with comprehensively in launch contracts. Generally speaking, loss or damage arising from the performance or non-performance of launch services and suffered by either the launch provider, its customer or their respective contractors, sub-contractors and suppliers must be absorbed by the party suffering such loss or damage. Third party liability is addressed through the provision of liability insurance (discussed below) and, in certain cases, by government indemnification.

State responsibility and the provisions of the 1972 Liability Convention have not been invoked in connection with third party liability arising directly from a launch (though have arisen in connection with the uncontrolled return of an object from space, e.g. Cosmos 954). Clarification of the term "launching state" (i.e. a state which launches or procures the launching of a space object or a state from whose territory or facility a space object is launched) as used in the Liability Convention is warranted in order for a state and its juridical persons to determine which party or parties would bear international responsibility for any injury or damage.

Some conception of state responsibility is implied in the licensing authority granted to the United States Department of Transportation's Office of Commercial Space Transportation. Pursuant to the Commercial Space Launch Act of 1984, the exercise of authority to license launch activities extends beyond any person launching a launch vehicle from the U.S., to U.S. natural and juridical persons launching anywhere outside the U.S., to any juridical person organized or existing under foreign law but controlled by a U.S. person (natural or juridical) launching a launch vehicle anywhere outside the U.S. but not in a foreign state (unless an agreement with the foreign state to the contrary exists).

Another provision in a standard launch services agreement that bears on international space law pertains to the 1974 Registration Convention. Typically, the launch services provider must undertake to register the launch vehicle with the appropriate launching state or states and the launch customer is responsible for registration of the payload with the proper launching state or states. A straightforward reading of the Registration Convention indicates that there may be more than one launching state involved in a single launch (a state that launches or procures the launching of a space object as well as the state from whose territory or facility a space object is launched) and each such launching state may be responsible for different parts of a space object (a term that is defined to include component parts of a space object as well as its launch vehicle and parts thereof). The question arises as to whether it is reasonable to impose registration obligations under the Convention on the provider of the launch vehicle or the component parts of the space object.

Insurance

States from whose territory objects are launched often seek to pass on the liability they would incur under the Liability Convention and the Outer Space Treaty to the launch company. For example, Arianespace, a French corporation, is required to

reimburse the French government for damages the government would be required to pay arising from any injury or damage caused by Ariane launches, up to a maximum of 400 million French francs per launch. This is pursuant to European Space Agency declarations. In turn, Arianespace customarily procures third party liability insurance up to a limit of 400 million French francs and extends its coverage to the French government and its customer, among other parties.

In the United States, a launch company is required to obtain third party liability insurance or demonstrate other financial responsibility to compensate the maximum probable loss (as determined by the Office of Commercial Space Transportation) from third party claims. This is typically accomplished by commercially obtained third party launch liability insurance pursuant to specially prepared insurance policies. The U.S. government will provide for payment of successful claims of third parties in excess of the insurance, up to a maximum of \$1.5 billion.

The common perception among participants in commercial launch activities is that, while the likelihood of third party injury and damage is remote, based on the excellent safety record of launch companies, the potential consequences of a remote occurrence can be significant. Direct damages may include bodily injury and property damage as well as environmental impairment -- perhaps a higher risk concern. This potential liability has proven to be a deterrent for commercial launch companies.

Which participants may bear some responsibility for damage remains an open issue. In addition to the launch company and its contractors, other participants may also be exposed to claims, such as the launch company's state of incorporation (if it is not a government agency), the payload owner, its manufacturer and contractors and their respective states of incorporation, the operator of the launch site and so on.

Concerns about liability are often raised by, for example, purchasers of transponders on the satellite to be launched and the financial institutions that may have financed the construction and launch of the payload. While it is unlikely such remote participants would ultimately be found responsible, the potential "deep pockets" they provide make them attractive targets of any legal action which would require them to expend considerable resources defending themselves.

Clarification of which participants and their launching states would be internationally liable for damage arising from space activities at launch and during the conduct of space activities would be welcome by the commercial space industry.

An issue of potential concern within the insurance industry is the increase of space debris. Launch and in-orbit insurance policies pay claims for damage caused to the insured payload or failure of the payload to perform according to its specifications, whether as a result of a launch failure, mechanical malfunction or external cause -- such as extreme solar disturbances or orbital debris. Since most insurance programs have involved telecommunications satellites placed in geostationary orbit -- an area where debris is relatively scarce -- possible damage by space debris has not had a material adverse effect on the placement of insurance. However, with a number of planned low earth orbit systems for mobile communications, the likelihood of damage caused to a satellite by space debris is measurable. Efforts of the international legal community to control the growing problem of orbital debris would be welcome by the insurance industry and the purchasers of insurance.

Finance

Many of the satellite and other space hardware projects that have been launched have involved various types of financing. A number of national projects have been supported by export financing, such as Brazil's Brasilsat, Mexico's Morelos

and Indonesia's Palapa telecommunications projects. Construction financing has been used for commercial projects such as Orion, SPACEHAB, Asiasat and APT Satellite.

Financial institutions involved in satellite projects have faced a number of international law issues that have affected the completion of their financings.

In a recent construction financing involving the loan to a satellite operator of funds to make progress payments to the manufacturer of the satellite and the provider of launch services, the following two issues having international law implications have arisen. The satellite is U.S. manufactured and the launch is to be provided by the China Great Wall Industry Corporation of the People's Republic of China.

First, as a result of sanctions imposed by the U.S. President last August 24, 1993 effectively preventing the export of U.S. manufactured satellites to the People's Republic of China, there is a concern on the part of the financial institutions making loans to the satellite operator that it will not be able to have its satellite exported to China for launch in time.

The sanctions were imposed on China due to the reported sale by China of rocket hardware to Pakistan resulting in concerns over the proliferation of missile technology throughout the world. Banks are concerned regarding the highly political nature of the process of the export of space technology because of its close relationship to military activities.

In the United States, efforts are being made to move civilian satellites and component parts away from the controls applicable to military space hardware, which are primarily under the aegis of the State Department and to the jurisdiction of

the Commerce Department . If the international law community can assist in formulating an international regime for the control of the proliferation of space technology that has or can have military applications, this will avoid concerns in the commercial community regarding the timely implementation of various commercial space projects.

The second international law-related issued of concern to the banks is the telecommunications regulatory approval process. Growing demands for radio-frequency allocation and geostationary orbital positions lead to increasing complications in the launch and operation of telecommunications satellites. Most satellite projects require the greatest portion of payment for satellite construction and launch services well in advance of the actual placement of the satellite in orbit. This means that the banks will have made sizable loans to the satellite operator before any assurance that the radio-frequency and orbital assignments will have been coordinated and notified under the auspices of the International Telecommunication Union. The banks are, therefore, faced with the risk that the satellite will not be operable or will have to be modified in a manner that will impair its business plan due to telecommunications regulatory issues.

The comfort the banks seek is that the use of the satellite frequencies and the orbital position of the satellite will have been properly coordinated and notified to the Radio Communication Bureau of the ITU and entered into the Master Register of the RCB. Of course, this does not necessarily assure that no harmful interference will result from or be caused to the satellite. It would be desirable to facilitate the implementation and financing of satellite telecommunications projects, if the process of frequency and orbital coordination among national telecommunications authorities was made more expeditious and streamlined and that a formal and binding dispute resolution process was implemented by the ITU.

Conclusion

International legal principles and commercial law applicable to space activities intersect with regularity. An opportunity exists for the international community to build on the firm cornerstones of international space law and the basic space treaties to create, revise and clarify international law to respond to the needs of a growing commercial space industry. The foregoing examples represent just a few areas in need of attention. Others include intellectual property protection, property rights and criminal law.

As we move from the era of space exploration, which prevailed at the time the basic principles of international space law were established, to routine space activities and a permanent presence in space, the need grows for greater action by the international legal community to help facilitate the orderly conduct of commercial space activities for the benefit of all people. Establishing a dialogue with the aerospace industry and the insurance, finance and legal communities will assist greatly in this process.