PROFIT OR SECURITY: SPACE REGULATIONS LEGAL COLONIAL

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Annotation. This article examines what legal problems there are in the regulation of space activities. Also, attention will be paid to reveal the importance of this field and its essence.

The main body. In today's globalization, the fundamental sources regulating the international space law on the use of space and the implementation of scientific research work, the rules and regulations established by the national legislation and international organizations, as well as the issues that are currently relevant and waiting for a solution are considered.

Summary. Providing suggestions and advice on global issues considered. Calling each of the independent countries of the world to pay attention to this direction as a particularly important state direction.

Key words: *International space law, common heritage of mankind, metalaw*

Firstly, it would be good to begin with the meaning of space law. *International space law* - this is the body of law governing space-related activities, encompassing both international and domestic agreements, rules, and principles. Parameters of space law include space exploration, liability for damage, weapons use, rescue efforts, environmental preservation, information sharing, new technologies, and ethics. Other fields of law, such as administrative law, intellectual property law, arms control law, insurance law, environmental law, criminal law, and commercial law, are also integrated within the space law.[1]

Common heritage of humanity (also termed the common heritage of mankind, common heritage of humankind or common heritage principle) is a principle of international law that holds the defined territorial areas and elements of humanity's common heritage (cultural and natural) should be held in trust for future generations and be protected from exploitation by individual nation states or corporations. Researches show that some of the current issues related to space law include the active participation of private sector entities in space, which requires a critical evaluation of existing legislation and policies.

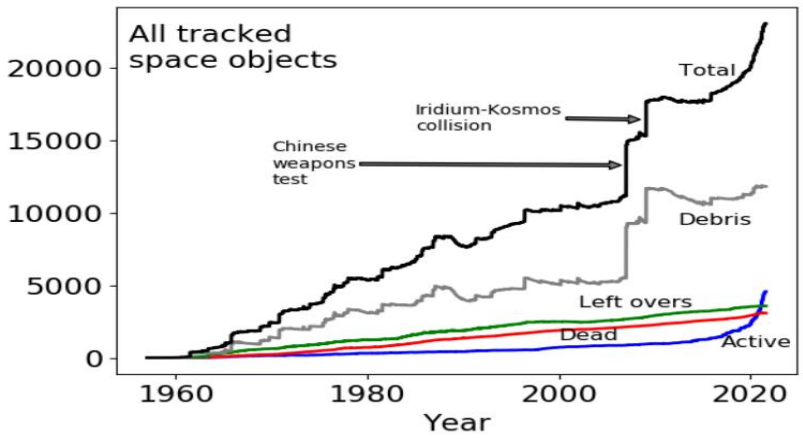
a. the need for its own legal changes in order to apply domestic legislation and subsequently be more involved in the development of ***the commercial space***.

b. the adequacy of the current international liability system for the ***safety of space tourists*** in the event of a space transport accident;

c. increased use of space for ***military operations***.

d. problems of ***cleaning up*** space debris and protecting space resources.

[1] "What Is Space Law?". *Legal Career Path*



In fact, there are a lot of issues which are should be resolved in the space law and so far the process of explorations is being taken on this subject.

So, we shall discuss some of the issues mentioned above and specifically the main key issues we will consider include:

1. Increasing the involvement of the special sector in space activities
2. The issue of reproduction of cyosmic waste
3. The future opportunity of the academic mining activities

Main body. One of the earliest documents on space law was czech jurist *Vladimír Mandl's* ***"Das Weltraum-Recht: Ein Problem der Raumfahrt"*** written in German and published in 1932.[2] As far as future space legal issues are concerned, the main and most important treaty governing outer space law is *the Treaty on the Principles of the Exploration and Use of Outer Space by Nations, Including the Moon and Other Celestial Bodies*, or more generally *the Outer Space Treaty* of January 27, 1967. It is the foundational text of this modern branch of international law.

Treaty	Official title	Year signed	Entry into force	Countries
Partial Test Ban Treaty	Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water	1963	1963	126
Outer Space Treaty	Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Mooon and Other Celestial Bodies	1967	1967	111
Rescue Agreement	Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Mooon and Other Celestial Bodies	1967	1968	98
Liability	Treaty on Principles Governing	1972	1972	96

[2] Kopal, V. The Life and Work of Professor Vladimir Mandl – A Pioneer of Space Law. New Perspectives of Space Law - Proceedings of the 53rd IISL Colloquium on The Law of Outer Space. Paris: International Institute of Space Law, 2011

Convention	the Activities of States in the Exploration and Use of Outer Space, including the Mooon and Other Celestial Bodies			
Registration Convention	Convention on Registration of Objects Launched into Outer Space	1974	1976	71
Moon Treaty	Agreement Governing the Activities of States on the Moon and Other Bodies	1979	1984	18

Furthermore, in our national legislation also pays attention to this field and receives new legal bases which are fit to the international requirements. For instance: In 2019, *"law on measures to organize the Agency for Cosmic Research and Technology under the Cabinet of Ministers of the Republic of Uzbekistan"* is accepted by Cabinet of Ministers of the Republic of Uzbekistan Decree. According to this document, agency of ***"Uzbekcosmos"*** was established and its activity began to work. The main functions of the ***"Uzbekcosmos"*** are followings:

a. Development and implementation of unified state policy and strategic directions in the field of space research and technology;

b. Development and implementation of state programs for the development of space network in the Republic of Uzbekistan;

c. Preparation of proposals for improving the legislation in the field of spacism, space research and technology, including draft normative legal acts;

d. Ensuring the necessary development of spacelance, works, services in the field, and the implementation of the legislation in the field of space activities in order to organize services;

e. Development and implementation of comprehensive measures for the development of space network infrastructure, space research and technologies, research, experimental and design and innovation work;

f. Organization of training, retraining and advanced training of personnel in all areas of space activity, including leading foreign higher education institutions;

g. Assistance in increasing the efficiency of tasks to address government agencies through direct stratosphere and other aircraft, as well as the use of land of satellite space;

h. International cooperation in the field of space research and technology;

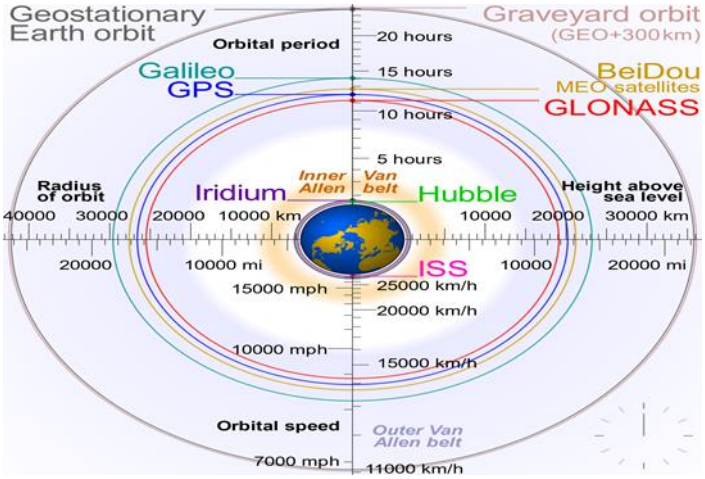
i. Development of cooperation with international investments and advanced technologies in the field of space, including the conditions of the state-private partnership;

j. Ensuring the involvement of local commercial structures;

k. Encouraging commercialization of some areas of space activity.[3]

[3] Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 781 of 17.09.2019

Private sector entities should be involved in the space. Although the use of space is still in the experimental stage, there are some new innovations that are increasingly being implemented. Thus, we have entered a new era of space law, under which space operations are open to both the public and private sectors, usually controlled by government agencies. Every year, more countries are launching new space programs of their own or allowing private corporations to conduct space operations on their own, increasing the risk of adopting initiatives that ignore or even violate international space treaties.



Borders of space scientific length. This would encourage a different approach to space law and reinforce the need to reform the rules to adapt to new circumstances. In particular, if we consider that all countries will soon be able to carry out exploitation missions, due to the low cost of launching. At a time when space operations were purely scientific and the only participant in exploitation and research, governments, therefore all space agreements were directed only at states, and the framework of space regulation was developed. Nevertheless, international, regional and national legal regulations apply to entrepreneurs and private individuals working in space.

According to the **article 4** of "***Outer of Space Treaty"***, States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner. The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.[4]

[4] Official Records of the General Assembly, Twenty-first Session, agenda items 30, 89 and 91, document A/6431.Outer of Space Treaty.

It states that “States parties to the Treaty assume international responsibility for national space activities carried out by public agencies or non-governmental organizations”. It also states that “the respective state is responsible for authorizing and controlling all activities of non-governmental non-profit organizations”. The article establishes a bilateral structure in which private action is allowed at the same time, but the obligation rests with the states as a result of an agreement between the competing claims of the Soviet Union and the United States. The most common perception is that states retain legal responsibility for the actions of their domestic private commercial entrepreneurs. Access to space is regulated by states, and therefore they must take reasonable precautions. From the point of view of private entrepreneurs, the strategy of the legal side of responsibility is complicated.

The 1972 Liability Convention distinguishes between strict and fault-based liability, but does not answer the question of who “owns” the space object that caused the accident and who is “responsible” for it. According to the convention, “the launching state is responsible for any damage caused by its space object”, but in the case of private participation, the question is not so simple. There are also words describing the “launch status” such as questions about who is doing the launch and what the responsibilities are if it's a private launch operator. However, since only states are protected by treaties, states are the only entities that bear the maximum liability of international liability according to the state of registration of a space object. Such a presumption puts States at risk of higher compensation if strong provisions, such as liability insurance obligations, are not established in national space law to protect against liability.

The issue of increasing space debris. Increased activity in space has resulted in an absolute dump of orbital space debris consisting of obsolete satellites, as well as parts and instruments lost during extravehicular activities. Space debris can pose a threat to satellite navigation, particularly for spacecraft operating in Geostationary Satellite Orbit, where it increases the risk of collisions with moving satellites or interference with transmissions. Therefore, the Earth orbit is crowded with 600,000 orbiting objects, increasing the possibility of contamination with radioactive and other hazardous substances. In 2009, the collision of two satellites in orbit for the first time showed that the problem of space debris is inevitable.

However, neither the UN space treaties nor even the existing provisions of the Outer Space Law can solve the problem of space debris with the desired efficiency. This inadequacy is due to confusion over liability for space debris damage and the absence of a legally binding contract. According to the 1972 Liability Convention, “the launching State is responsible for damage to a space object or to persons or property on board of another State” if the damage is due to negligence. This statement raises two important questions: on the one hand, it is difficult to prove negligence, because the “laws of space traffic” do not systematically exist, on the other hand, in most cases it is an impossible task to determine who is responsible, since the origin of most of the space debris taking into account the complexity of

the output.[5] Another existing concern is the lack of a legally binding definition of space debris, although the term covers everything from small debris to "dead" satellites, it is generally accepted that nevertheless, important steps have been taken at the global, national and regional levels to mitigate the ecological destruction of space.

In 2009, the Committee on the Peaceful Uses of Outer Space Guidelines for Space Debris Mitigation were implemented. The international project, originally developed in 2002 after an assessment of the risks of atmospheric and space debris, was a positive step. The text distinguishes two main origins of space debris: (a) accidental and intentional fragmentation, and (b) debris released during vehicle launch. A total of seven points are included in the guidelines, which aim to distinguish between short-term and long-term initiatives. The application of these guidelines is voluntary in nature, but they have an important impact as they have been implemented by all major space organizations and actors. Given the limited maneuvering potential and their high speed, it is required to ensure the execution of instructions along with the control of space traffic.

Since the United Nations Outer Space Treaty does not recognize the termination of jurisdiction and control, one potential solution to the space debris problem is to create legislation that mitigates any possibility of another state's removal of debris without being deemed illegal. A clear universal distinction between functional spacecraft and non-functional space debris and the introduction of legally binding definitions for all vague terms is the most important solution to the space debris problem. Recovery steps can also be considered, particularly as technological advances make thermal decomposition of space debris a reasonable solution. Besides the high cost, the biggest problem with corrective steps is the variation in the recommendations given.[6]

In general, a comprehensive approach to this problem by solving all legal issues and implementing an international agreement that provides binding legal and technological rules governing the management and prevention of space debris at all levels of space operations is a preferable solution.

Future possibility of space mining activities. Although natural resources are finite on Earth, many of them are abundant in celestial bodies, including asteroids. Their misuse, one example of potential space-related legal problems, violates Article II of the **1967 Outer Space Treaty** (OST), which states that "Outer space, including the Moon and other celestial bodies not". to national appropriation by claim of sovereignty, use or occupation or by any other means. All types of exploitation in space, even by private individuals, are prohibited. It did not prohibit

[5] https://theconversation.com/humans-have-big-plans-for-mining-in-space-but-there-are-many-things-holding-us-back-181721

[6] Williams, M., 2011. Space Debris as 'A Single Element for Debate. Proceedings of the International Space Law Institute, 4(1), p. 333.

the United States from implementing the Space Exploration and Use Act of 2015, at the request of private businesses or voting on exploration and research to seek new markets to compensate for the end of Luxembourg, bank secrecy and the July 2017 Law on the Use of Space Resources. Both texts create a regulatory framework that allows private entities to exploit and commercialize the resources of celestial bodies.

How do these countries recognize the international legality of these laws? Their point is that the appropriation of a forbidden celestial body is separate from the use of its resources, which would be legal. Two arguments are advanced here. On the one hand, Article II of the Outer Space Treaty does not mention natural resources, only celestial bodies. Accordingly, the non-appropriation rule does not apply to resources. Thus, if the appropriation of a celestial body is prohibited, the use of its resources becomes legal. In addition, American law clearly states that the United States does not have the right to own space. On the other hand, the mining industry is protected by the freedom of use of outer space as stated in Article I of the aforementioned international treaty. With respect to celestial bodies, other countries such as the United Arab Emirates and Saudi Arabia are in the process of establishing national legal structures for the commercial use of space resources. The international law of outer space can be changed within American national law if national normative action continues with the introduction of other laws.[7]

Given the uncertainty of the legality of the laws of the United States and Luxembourg, it is necessary to return the discussion to an international forum and find a mechanism to organize the use of natural resources of celestial bodies. Potential alternatives include the creation of a national permit registry, under the responsibility of the United Nations Secretary-General, specifying the location (and nature) of exploration and exploitation operations. Such a scheme, if agreed upon by the space powers, would be consistent with the terms of the **1979 Moon Treaty** and could reconcile the interests of the space industry with international law. France, which signed the **1979 Moon Agreement** but has not yet ratified it, could be the source of such an initiative. At the same time, launching resources from Earth is very expensive.

As of 2018, it costs about A$3,645 to carry one kilogram of material into low Earth orbit, and more to carry it higher or to the moon. Materials mined in space could be used in space to save on that cost. Harvesting required materials on-site is known as “on-site resource utilization”. This includes everything from mining ice to collecting dirt to build structures. NASA is currently investigating the possibility of building buildings on the moon using 3D printing. Mining in space could also transform satellite management. Current practice is to deorbit a satellite after 10 to 20 years when it runs out of fuel. A lofty goal for space companies like Orbit Fab

[7] See also: Johnson, N., April 18-20, 2005. Orbital debris survey in the US. Darmstadt, Germany, Proceedings of the Fourth European Conference on Space Debris, ESA/ESOC

is to develop a type of satellite that can be fueled by propellants harvested from space.[8]

Our work at UNSW's Australian Space Engineering Research Center is to find ways to reduce risk in the space industry. Of course, there are many technical and economic challenges. The same initial costs that drive so many people to start mining off Earth also mean that mining equipment is also expensive to bring into space high (or even feasible), it should be as simple as possible. Also, the farther away from the earth, the longer it takes to reach. There is a delay of up to 40 minutes when sending commands to the Mars rover and determining if it was successful.

He has only a 2.7 second lag in lunar communications, which could easily mine from a distance. Near-Earth objects also have Earth-like orbits and can pass the Earth at distances comparable to the Moon. They are ideal candidates for mining as they require very little energy to reach and return. Given the added challenge of sending humans into space, extraterrestrial mining will have to be largely automated or remotely operated. B. Life support requirements, radiation avoidance, and additional initial costs. But even mining systems on Earth are not yet fully automated. Before we can mine asteroids, we need to improve our robotics.

Summary. As humans expand their capabilities in space, the laws governing human activity in space are becoming increasingly applicable and important to both governments and the commercial sector. Out of Space Treaty has an important position and is the foundation on which all other foundations of international space law are built. Technological progress has made it possible to carry out space operations for private operators, which are not yet included in the current legal system. In order to ensure the organized and systematic use and exploration of outer space, this development increases the need for changes in certain international regulations and legislation.

Commercial use of space or space debris is one of the most important problems facing the international community in the near future. As space technology and its applications develop, other concerns such as ownership of outer space resources become relevant. It appears that international cooperation is a key component of the continued peaceful exploration and use of space, but Outer Space Law is disintegrating, a trend driven primarily by the commercial use of space. In response to these concerns, there is a need to adopt and harmonize domestic space laws to create a safe environment for space exploration in terms of the legislative framework applicable to them. However, following changes to International Space Law, domestic laws must be harmonized. Finally, it must be recognized that there is a clear need to strike a balance between the need to amend and reform treaties and protect what is currently safe. Alternatively, the lack of common agreement may lead to the disintegration of the current structure.

[8]https://theconversation.com/humans-have-big-plans-for-mining-in-space-but-there-are-many-things-holding-us-back-181721

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