Submission on the Mandate and Purpose of the Working Group on Legal Aspects of Space Resource Activities

The type of space resources that fall within the mandate and scope of the Working Group

Taking into account the different conceptual approaches taken by States participating in space activities to the understanding of the subject matter, it is proposed to enshrine the concept of "space resources" in the broadest possible interpretation.

According to the definition, a "resource" means any object (substance, property) of the material world, which constitutes or may constitute a value in terms of its use in any type of economic activity.

Thus, the concept of "space resources" may cover any objects outside the surface, hydrosphere, atmosphere of the Earth and its interior, including natural, natural and anthropogenic, anthropogenic and man-made objects, regardless of their practical applicability in the present or future.

Space resources include celestial bodies, spaces and territories of celestial bodies, mineral resources, liquids and gases located on them, various types of radiation, orbital-frequency resource, and other objects.

After the establishment of a universal definition, it is proposed to systematize space resources according to specific classification attributes (exhaustible/non-exhaustible, renewable/non-renewable, solid/liquid/gas, explored, estimated, etc.), leaving the list open to further additions.

The next step could be to work out a number of terms and definitions, in particular such as "natural space resources", "mineral space resources", "technology-related space resources", "resource exploration", "resource exploitation", "resource utilization", "resource processing", "minerals of celestial bodies" and other definitions necessary to formulate proposals for the

legal regulation of activities for the exploration, exploitation and utilization of space resources.

Due to the fact that the necessary legal framework for research and study of certain types of space resources, such as solar energy and the orbital-frequency resource is available or not required, it is advisable to exclude these types of resources from the scope of the Working Group while referring to them in the classification system.

The type of activities that fall within the mandate and scope of the Working Group

There are three main areas of work that fall within the scope of the Working Group: exploration, exploitation and utilization of space resources. Thus, the Working Group needs to develop a definition for each of the concepts to determine their scope of application.

The Working Group also needs to specify the organizational and legal forms of international cooperation in the exploration, exploitation and utilization of space resources that could be used within existing rules of international law.

An important task of the Working Group is also to develop a monitoring mechanism for activities related to the exploration and utilization of space resources, which may include:

- issues of establishing responsibility when implementing the said activities;
- monitoring compliance with established international standards regulating the extraction of space resources, as well as control over the lawfulness of such operations;
- control over the organization of licensing of activities related to the exploration, exploitation and utilization of space resources;

- an algorithm for resolving conflicts and disputes between actors engaged in the extraction and utilization of space resources, an algorithm for international consultations between states;
- a mechanism for informing the international community (including the obligation to inform the UN Secretary-General) of the nature, progress, locations, and results of such activities;
- consideration of the feasibility of establishing a special international body responsible for securing the regime of the utilization of space resources (by analogy with the ITU, the International Seabed Authority).

The views of State members regarding the existing legal framework for space resource activities

We note that some legal aspects of the life cycle of space objects, such as design and creation, launch and placement, registration, operation, liability (for damage caused), ensuring radio-frequency compatibility, prevention and reduction of "space debris," etc., are specified in the legally binding instruments of international space law – the 1967 Outer Space Treaty, the Convention on International Liability for Damage Caused by Space Objects, and the Convention on Registration of Objects Launched into Outer Space. Furthermore, these aspects are also governed by so-called "soft law" instruments – the Principles Relating to Remote Sensing of the Earth from Outer Space; the Principles Relevant to the Use of Nuclear Power Sources in Outer Space; the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, etc.

The use of the orbital-frequency resource is governed by the Radio Regulations of the International Telecommunication Union.

As to using the natural resources of celestial bodies, at present, international space law does not contain specific provisions that would regulate such activities. The 1967 Outer Space Treaty, as well as the 1979 Moon

Agreement, set out just a general framework for carrying out activities related to the exploration, exploitation and utilization of space resources:

1) The 1967 Outer Space Treaty does not restrict the use of natural resources, including their extraction. Thus, the exploitation of natural resources of the Moon and other celestial bodies is a type of outer space "utilization", provided for by the principle of freedom of exploration and utilization of outer space. However, such utilization cannot constitute "national appropriation" generating a right of ownership.

Thus, the question is how Article II of the 1967 Outer Space Treaty should be applied and interpreted in order to provide an appropriate legal regime that would facilitate the exploration and exploitation of natural space resources, including by non-governmental entities.

2) The 1979 Moon Agreement contains basic principles for the initial stages of exploration and limited exploitation of natural resources. The document extends the provisions of Art. II of the 1967 Outer Space Treaty, in particular the right to collect on and remove from the Moon mineral and other substances and use them in quantities appropriate for scientific investigation, as well as the support of their missions.

In addition, the Agreement contains a template to establish a detailed international regime, the need for which would be determined in the future "as such exploitation is about to become feasible."

Thus, a specific legal regime to govern the exploration, exploitation and utilization of space resources should be developed exclusively within the specialized UN platforms on the basis of current international space law, with political, legal and technical factors taken into account. The proposed regime could also be developed capitalizing on the experience gained in related areas of human activity (air law, law of the sea, ITU regime).

Current practice and challenges in the implementation of the existing legal basis for such activities

There are a number of issues related to the development of a framework for activities related to the exploration, exploitation and utilization of space resources at the international level.

The non-appropriation of outer space issue

The principle of non-appropriation of outer space, including the Moon and other celestial bodies, enshrined in Art. II of the 1967 Outer Space Treaty, is legally binding and must be applied to any activity carried out in outer space. In other words, no act performed by a State, entity or individual - be it the declaration of sovereignty, use or occupation, or "any other means" - can serve as a legal basis for establishing ownership of outer space in whole or any part thereof, including the Moon and other celestial bodies.

In this regard, any act of appropriation by a State or entity/ individual would be a violation of the guaranteed freedom of other interested parties' access to any part of outer space.

Space resources as components of outer space are its integral part. In particular, resources located on the surface of a celestial body, as well as resources extracted from its depths, are organically associated with a certain physical volume (space) of the celestial body itself.

Thus, a space resource, even after its extraction (removal), does not lose its unique natural extraterrestrial origin, unlike a resource mined on Earth. The transformation of space resources, in particular their extraction and, as a result, the acquisition of a natural-anthropogenic nature, does not give rise to ownership of these resources.

However, the national legislative initiatives of certain States vest their non-governmental persons, citizens and entities with the right to mine, appropriate, own, transport and sell the mineral resources of celestial bodies, including asteroids. But the national law of any State cannot extend to territories outside its jurisdiction.

Such initiatives entail ambiguous interpretations of the non-appropriation of outer space principle, blurring the purpose of 1967 Outer Space Treaty Art. II.

Thus, the Working Group needs to define the boundary between "use" and "appropriation by use" of outer space and to establish the legal status of mined space resources.

Benefit-sharing issue

In accordance with 1967 Outer Space Treaty Art. I, the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development. In other words, all countries of the world should benefit from outer space activities, rather than only those who have provided relevant investments or carried out specific activities.

The Working Group therefore needs to determine how to ensure the equal and equitable sharing of the benefits arising from the exploitation of space resources.

The issue of limited space resources

Certain space resources, such as areas of the lunar surface favorable to the placing of space infrastructure facilities in exploitation projects, might be limited, that is, finite. Consequently, space resources can be limited either in terms of volume or in terms of location, to which access is limited.

Thus, it is necessary for the Working Group to determine a mechanism for prioritizing missions and the number of admissible missions in the light of the physical characteristics of the celestial body and to consider the issues of the avoidance of the depletion of extraterrestrial resources and conservation of the space environment, among other issues.

The issue related to the placement of infrastructure on the territory of a celestial body

Currently, a number of promising projects on the exploration of outer space involve the use of territories on the surface and in the interior of celestial bodies, which are suitable for the placement of various space infrastructure facilities.

In international law, the principle of "*terra nullius*" is often applied to territorial claims, whereby a State may claim a legitimate interest in "no man's land" if there is evidence of "continuous and peaceful effective control" over the territory for an extended period. However, this model is not applicable to outer space as *res communis*.

Article II of the 1967 Outer Space Treaty protects outer space from conflicts related to territorial claims to outer space. Accordingly, the surface or subsoil of celestial bodies cannot be regarded as the property of any State, international organization, state organization, non-governmental institution, private company or individual.

Thus, there is an urgent need to develop a legal basis for the use of the territories of celestial bodies and also to determine whether the principle of "free access to all areas of celestial bodies" applies in the context of the placement of space infrastructure of the participants in such activities.

Issue related to the placement and use of multi-satellite systems of small spacecraft

Multi-satellite systems involving thousands of small spacecraft represent a potential threat to the safe conduct of space activities.

The short active life and limited deorbiting capabilities of small spacecraft make them a potential source of increasing amounts of space debris.

The large number of small spacecraft in the most used low-orbit area of near-Earth space, combined with their frequent maneuvers, creates difficulties in tracking their movements. This, in turn, makes it difficult to predict possible dangerous approaches in low-Earth orbit.

Multi-satellite systems increase the risks of such negative consequences as:

- obstruction of access to space due to difficult-to-predict probable collisions that may occur during launch into orbit;
- an increase in the threat of additional "space debris" generation in the most heavily used near-Earth space area;
- increase of negative influence of satellite systems of small spacecraft on astronomical observations made by ground-based observatories.

When deploying multi-satellite constellations, as well as during maneuvers, States with jurisdiction over multi-satellite system operators ignore the requirements of Article IX of the 1967 Outer Space Treaty to consult with States the interests of which may be affected before any action is taken in space.

The current practice of deploying and operating multi-satellite systems in low-orbit area of near-Earth space is becoming an obstacle to the realization by all interested parties of their right to free access to outer space and the use of the orbital frequency resource.

We consider that the Working Group should focus its efforts on the rational use of the orbital-frequency resource within the existing legal framework.

Relevant factors for the development of a set of initial recommended principles for such activities

For the development of a set of initial recommended principles, legal regimes governing related industries could be taken as a starting point.

The International Telecommunication Union (ITU) regime for equitable sharing of rights to geostationary orbit (GEO) positions is a regulatory model for the use of the global commons for the benefit of all States. As the demand for GEO continues to grow, ITU continues to actively update the regime by regularly revising the Radio Regulations. The Radio Regulations promote equitable access to, and rational use of, the natural resources of the radio-frequency spectrum and GEO.