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English only

Committee on the Peaceful Uses of Outer Space
Legal Subcommittee
Sixty-second session
Vienna, 15–26 April 2024
Item 6 of the provisional agenda*
Status and application of the five United Nations treaties on outer space, and ways and means, including capacity-building, to promote their implementation

Questionnaire on the application of international law to small satellite activities

Note by the Secretariat

At its sixty-second session, in 2023, the Working Group of the Legal Subcommittee on the Status and Application of the Five United Nations Treaties of Outer Space agreed (A/AC.105/1285, annex I, para. 6) that States members and permanent observers of the Committee should continue to be invited to provide comments and responses to the "Questionnaire on the application of international law to small satellite activities" (A/AC.105/1285, annex I, appendix II).

The present conference room paper contains replies received from Angola, Morocco and the Russian Federation to the questionnaire.

* A/AC.105/C.2/L.326.

Angola

[Original: English]
[Received on 23 January 2024]

Questionnaire on the application of international law to small-satellite activities

1. Overview of small-satellite activities

1.1 Small satellites serving societal needs:

Yes, small satellites are serving the needs of our society. As an emerginf Space nation, small satellites have been crucial do developcapacity building activities under the Education Space Program managed by the Angolan Space Program Management Office.

1.2 Country's involvement in small satellite activities:

Yes, our country is actively involved in small-satellite activities, especially in regard of the small satellite focused capacity-building. On the covering the entire life cycle from design and manufacturing to launching and operating. One of the notable projects include Cansat Angolano, a project aimed to design assembling, integrate and testing 10 small satellite with the Angolan universities for educational purpose.

1.3 Entities involved in small-satellite activities:

Small-satellite activities are carried out by the Angolan Space Program Management Office (GGPEN) and academic stakeholders in the country. Note that all these projects are for educational purposes.

1.4 Focal point for coordinating small satellite activities:

Yes, there is a designated focal point in our country responsible for coordinating small-satellite activities. This entity is the GGPEN.

1.5 International cooperation in small-satellite activities:

No.

2. Licensing and authorization

2.1 Legal and regulatory framework for small-satellite activities:

No, our country has not a legal and regulatory framework to supervise various aspects of small-satellite activities.

3. Responsibility and liability

3.1 New challenges for responsibility and liability:

The rise of small-satellite activities has indeed presented new challenges for responsibility and liability. The compact size lower costs, and increased numbers of small satellites in orbit raise questions about collision risk, space debris mitigation, and the attribution of responsibility in case of adverse events. The evolving nature of these challenges requires continuous review and potential adaptation of legal frameworks.

3.2 Enforcement of liability and insurnace requirements:

As previously mentioned all Angolan activity regarding small satellites were only for educational purposes, without placing the objects into the orbit. However, we are aware that liability and insurance requirements for operations of small satellites under country's responsibility are enforced through a combination of regulatory mechanisms. Operators are required to obtain liability insurance coverage to mitigate

risks associated with potential damage to the surface of the Earth, aircraft in flight, or other space obects in orbit.

4. Launching State and liability

4.1 Definition of “launch” for small satellites:

In our view, when the launch of a small satellite invlces two steps – first, launching from a state to an orbit, and second, deploying the small satellite to another orbit – the first step would be regarded as the “launch” within the meaning of the United Nations treaties on outer space.

4.2 International regulatory regime for small satellites:

Not at all. The current international regulatory regime provides a foundation for governing operators of small satellites. Considering the dynamic nature of the space industry, it might be beneficial to explore the development of specific guidelines or regulations tailored to address the challenges and opportunities associated with small satellites.

5. Small satellite registration practices

No.

6. Space debris mitigation in the context of small-satellite activities

6.1 Incorporation of space debris mitigation requirements:

No.

Morocco

[Original: French]
[Received on 18 January 2024]

Questionnaire on the application of international law to small-satellite activities

Small satellites represent a technological development that offers many advantages with respect to the use and exploitation of outer space, especially for developing countries. However, the development of nanosatellites and microsatellites poses a challenge in terms of the regulatory aspects of space activities and is worth including on the COPUOS agenda so that further consideration can be given to the legal issues concerning such space objects.

Russian Federation

[Original: Russian]
[Received on 15 January 2024]

1. Overview of small-satellite activities

1.1 Are small satellites serving the needs of your society? Has your country determined whether small satellites could serve an identified technological or development need?

The use of small satellites for the needs of scientific and socioeconomic development of the state is a promising application of space technologies. The task of creating multi-satellite space constellations for Earth remote sensing, communications, television and the Internet has become particularly urgent. In particular, research and development are carried out in the following areas:

- Operational monitoring of land and ocean for emergency control;

- Flight qualification of innovative service and target hardware using technology demonstration satellites;
- Expanding of high-speed Internet coverage across the Russian territory;
- Obtaining data for operational weather forecasting;
- Space research;
- Training students for practical activities in designing, manufacturing, testing, flight control of scientific and educational satellites.

1.2 Is your country involved in small-satellite activities such as designing, manufacturing, launching and operating? If so, please list projects, as appropriate. If not, are there future plans to do so?

The Russian Federation carries out activities related to the use of small satellites, their designing, manufacturing, launching and operating. Glavkosmos JSC provides launching services for small satellite payloads and has launched small spacecraft into orbit on request from more than 20 countries. Small satellites are widely used in the educational process, enabling students to acquire practical skills and knowledge of the actual manufacturing cycle of space technology. Russia expects to further develop these activities.

1.3 Which kind of entity in your country is carrying out small-satellite activities?

Activities related to the use of small satellites are carried out by the State Corporation for Space Activities “Roscosmos”, educational organizations of higher education, organizations of the Russian Academy of Sciences, and private companies.

1.4 Is there a focal point in your country responsible for coordinating small-satellite activities as part of your national space activities?

The State Corporation for Space Activities “Roscosmos” is responsible for coordinating activities on the use of small satellites in accordance with the Federal Law of the Russian Federation No. 215-FZ of 13 July 2015 “On the State Corporation for Space Activities Roscosmos”.

The State Commission on Radio Frequencies is an inter-agency coordination body under the Ministry of Digital Development, Communications and Mass Media of the Russian Federation, which is authorized to regulate the radio frequency spectrum and is responsible for state policy development in its allocation and use, including with regard to small spacecraft.

1.5 Are small-satellite activities carried out in the framework of international cooperation agreements? If so, what type of provisions specific to small-satellite activities are included in such cooperation agreements?

Activities related to the use of small satellites are carried out on the basis of the legislation of the Russian Federation and international agreements of the Russian Federation. The agreements do not include special provisions on activities related to the use of small satellites.

2. Licensing and authorization

2. Do you have a legal or regulatory framework to supervise any aspect of small-satellite activities in your country? If so, are they general acts or specific rules?

In order to prevent damage to the rights, legitimate interests, life or health of citizens, the environment, objects of cultural heritage (historical and cultural monuments) of the peoples of the Russian Federation and state defence and security, which can be inflicted due to space activities carried out by legal entities, the Roscosmos State Corporation licenses such activities. Within the framework of space activities pertaining to performing works (providing services) related to “small satellites”, the following types of work are licensed for development, manufacture, production

(serial), testing, repair, extension of the established resources and lifetime: automatic spacecraft, manned spacecraft, spacecraft designed to land and (or) move on the surface of planets, their satellites and other space bodies, as well as services of ground-based centres for flight control of space objects launched into space ("small satellites" are not stipulated as a separate type of product). The Russian Federation has a regulatory legal basis for licensing the works (services) in question with respect to spacecraft (including "small satellites"):

Law of the Russian Federation No.5663-I of 20.08.1993 "On Space Activities";

Federal Law of the Russian Federation No. 215-FZ of 13 July 2015 "On the State Corporation for Space Activities Roscosmos";

Federal Law of the Russian Federation No. 99-FZ of 4 May 2011 "On Licensing of Certain Types of Activities";

Federal Law of the Russian Federation No. 248-FZ of 31 July 2020 "On State Control (Supervision) and Municipal Control in the Russian Federation";

Decision No. 168 of the Government of the Russian Federation "On Approval of the Regulations on Licensing of Space Activities and Annulment of Certain Acts and Certain Provisions of Certain Acts of the Government of the Russian Federation" of 14 February 2022.

3. Responsibility and liability

3.1 Are there new challenges for responsibility and liability in view of small-satellite activities?

In general, the design and operation of "mega-constellations" of small spacecraft does not lead to new problems, but rather to the aggravation of the existing ones, including those of establishing responsibility and liability.

In particular, the operation of "small satellites" leads to:

(1) Impeded access to space owing to the difficulty in predicting possible collisions with space objects or their parts during the launch of satellites into Earth orbit;

(2) Upsurge of the risk of anthropogenic pollution of the most utilized region of near-Earth space;

(3) Greater interference with astronomical observations carried out ground-based observatories, which will only increase in the future.

In this regard, it can be noted that, in the absence of internationally recognized "space traffic rules", an increase in the number of legal disputes regarding the establishment of responsibility and liability for any participant in space activities should be expected. The latter may also include issues related to compensation of lost profits as well as difficulties in obtaining insurance benefits.

In addition, the use of commercial satellite systems for military purposes is of particular concern.

3.2 How are liability and insurance requirements enforced on an operator in your country, for a small satellite under your country's responsibility, in the event that "damage" occurs on the surface of Earth, to air craft in flight or to another space object in orbit?

Insurance requirements for small satellite operators in the Russian Federation are enforced in accordance with the provisions of Article 25 (Insurance of space activities) of Law of the Russian Federation No 5663-I of 20 August 1993 "On space activities", which stipulates that organizations and citizens who are using (operating) space equipment or have commissioned the production and use (operation) of space equipment shall ensure compulsory life and health insurance coverage for astronauts and staff of space infrastructure facilities as well as liability insurance for damage

caused to the life, health or property of other persons, in line with the procedures and on conditions established by law. The said entities and citizens are also entitled to obtain voluntary insurance for space equipment (the risks of loss, shortfalls in and damage to the space equipment). At the same time, the law provides that, in the event of damage caused by space activities occurring on the surface of the Earth, liability arises irrespective of the fault of the causer of such damage, and, in the event of an incident involving objects belonging to the Russian Federation, the responsibility to provide compensation lies entirely with the organization or citizen owning the space object that has caused the damage, under the procedures and conditions established by the Civil Code of the Russian Federation.

In the event of an incident involving foreign spacecraft, the Russian Federation adheres to the relevant provisions of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and the Convention on International Liability for Damage Caused by Space Objects.

4. Launching State and liability

4.1 Since small satellites are not always deployed into orbit with dedicated rockets as in the case of larger satellites, there is a need for clarification in the understanding of the definition of "launch". When a launch of a small satellite requires two steps – first, launching from a site to an orbit and, second, deploying the small satellite to another orbit – in your view, would the first step be regarded as the "launch" within the meaning of the United Nations treaties on outer space?

The first step involving the launch of a small spacecraft from a site to an orbit is regarded as the "launch" within the meaning of the United Nations treaties on outer space.

The definition of the term "launch" is laid out in Article I (b) of the Convention on International Liability for Damage Caused by Space Objects, which stipulates that "the term 'launching' includes attempted launching". Given the abovementioned provision of the Convention, the first step should always be referred to as the "launch", regardless of the number of steps completed by the spacecraft before it reaches its orbit.

4.2 Do you think that the current international regulatory regime is sufficient to regulate operators of small satellites or that there should be a new or different international regulatory approach to address operations of small satellites?

The current international regulatory regime is sufficient to regulate operators of individual small satellites as the requirements imposed on operators of small satellites are the same as those established for operators of other spacecraft.

Nowadays, a key feature of global space activities is the involvement of business companies, which focus on the deployment of mega-constellations of small spacecraft in near-Earth space. Along with the obvious social and economic benefits, such mega-constellations create risks for the long-term sustainability of outer space activities, including the accelerated accumulation of space debris in near-Earth space.

The trend towards using commercial satellite constellations and their terrestrial infrastructure for military purposes should also be noted. This problem is becoming global in scale. The existing international legal framework regulating the activities of small satellite operators requires additional scrutiny in the context of the use of commercial satellite constellations for military purposes.

The Russian Federation does not consider the possibility to relax the requirements for design, creation, licensing and operation of small spacecraft and their constellations, given that such systems pose a global threat to the long-term sustainability of space research.

5. Registration

5. Does your country have a practice of registering small satellites? If so, does your country have a practice of updating the status of small satellites? Is there any legislation or regulation in your country that requires non-governmental entities to submit to the Government information for the purpose of registration, including updating of the status of small satellites they operate?

The system for registration of space objects deployed into outer space that exists in the Russian Federation does not distinguish space objects by their size (small or large). All space objects, including small satellites, are registered in the Russian Federation in accordance with the Convention on Registration of Objects Launched into Outer Space.

The state function of maintaining the Register of Space Objects Launched by the Russian Federation into Outer Space is carried out pursuant to the order of the Federal Space Agency No. 44 of 22 March 2010 “On approval of the Administrative Regulations of the Federal Space Agency for the Fulfilment of the State Function of Maintaining the Register of Space Objects Launched by the Russian Federation into Outer Space” (registered with the Ministry of Justice of Russia on 22 September 2010, No. 18508). The Register is currently maintained by the Roscosmos State Corporation in coordination with the Ministry of Defence and Ministry of Foreign Affairs of Russia.

The procedure for registration of a space object includes receiving, verifying, accumulating and using the information on space objects launched into outer space, as well as making necessary changes and updates to the records based on the results of liaison with concerned federal executive agencies, persons operating a space object, international organizations and foreign states, in accordance with the legislation and international obligations of the Russian Federation.

The fulfilment of the state function of maintaining the Register includes the following administrative procedures:

(a) Preliminary examination of space objects and their inclusion into the annual launch schedule;

(b) Receipt by the “Roscosmos” State Corporation of a request for registration of a space object launched into the outer space;

(c) Verification of the completeness and credibility of the information received on the launch of a space object into outer space;

(d) Assigning a registration number to the space object and making a record of its launch in the Register;

(e) Receipt by the Roscosmos State Corporation of information on space objects which, having been deployed in Earth orbit, are no longer found in that orbit;

(f) Compilation of information on space objects recorded in the Register and its transfer to the Ministry of Foreign Affairs of Russia for submission to the Secretary-General of the United Nations;

(g) Receipt by the Roscosmos State Corporation of information on international registration number of a space object and its entry into the Register;

(h) Issuance of extracts from the Register.

Information to be entered in the Register includes data on space objects that have been launched to Earth orbit and completed at least one revolution as well as data on space objects launched farther into outer space.

The Russian Federation retains jurisdiction and control over registered space objects launched into outer space and intended for activities in outer space, including the Moon and other celestial bodies.

A space object may be operated by any entity or individual as an owner or under a contract with the owner, or based on the right of economic management or the right of operative management, provided that such entity or individual possesses the licence for performing relevant works (service provision) in carrying out space activities.

The Roscosmos State Corporation processes the information on launched space objects and keeps it up-to-date.

6. Space debris mitigation in the context of small-satellite activities

6. How has your country incorporated specific requirements or guidelines into its national regulatory framework to take into account space debris mitigation?

Space debris mitigation under the requirements and recommendations of the national legislation cover, inter alia, the activities involving the use of small satellites.

The federal law No. 215-FZ of 13 July 2015 “On the State Corporation for Space Activities ‘Roscosmos’” stipulates that, in order to accomplish the goals established by this federal law, the Roscosmos State Corporation organizes and carries out works to reduce anthropogenic debris in near-Earth space.

To implement space debris mitigation measures, a system of relevant national standards has been developed and put into effect:

- “GOST R 25645.167-2022. “National Standard of the Russian Federation. Space environment (natural and artificial). Model of the space-time distribution of the flux density of man-made substances in near-Earth Space” – specifies models and conditions;
- GOST R 52925-2018 “National standard of the Russian Federation. Space technology items. General requirements for space vehicles to reduce technogenic pollution in near-Earth space” (approved and brought into effect by order of Rosstandart No. 632-st of 21 September 2018) – contains requirements for preventing the creation of space debris and reducing the risk of collisions. The requirements of this standard apply to newly created and modernized spacecraft intended for scientific, socioeconomic (including those exploring deep space) and commercial purposes throughout the entire lifetime of spacecraft. The standard introduces terms and definitions in this regulatory field, determines the main sources of technogenic pollution of near-Earth space, establishes requirements for the construction of spacecraft to minimize space debris in terms of quantity, occupied area of near-Earth space and orbital lifetime;
- OST 134-1031-2003 “Space technology items. General requirements for the protection of spacecraft from the mechanical effect of fragments of natural or man-made origin” – contains requirements to ensure resistance to collisions.