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**Committee on the Peaceful
Uses of Outer Space
Legal Subcommittee
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Item 5 of the provisional agenda*

Status and application of the five United Nations
treaties on outer space

**Set of questions provided by the Chair of the Working
Group on the Status and Application of the Five United
Nations Treaties on Outer Space, taking into account the
UNISPACE+50 process**

Note by the Secretariat

At its fifty-eighth session, in 2019, the Working Group of the Legal Subcommittee on the Status and Application of the Five United Nations Treaties of Outer Space agreed (A/AC.105/1203, Annex I, para.12) that States members and permanent observers of the Committee should continue to be invited to provide comments and responses to the “Set of questions provided by the Chair of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, taking into account the UNISPACE+50 process” (A/AC.105/1203, Annex I, Appendix I).

The present conference room paper contains replies received from Chile, Finland, Germany, Morocco, Nicaragua, and the Philippines to the set of questions, as well as from the observer organization, the European Southern Observatory (ESO).

* A/AC.105/C.2/L.317.



Chile

[Original: Spanish]

English translation will be provided and made available as a separate document in due course.

[Received on 18 February 2020]

Set of questions provided by the Chair of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, taking into account the UNISPACE+50 process

1. The legal regime of outer space and global space governance

1.1 What is the main impact on the application and implementation of the five United Nations treaties on outer space of additional principles, resolution and guidance governing outer space activities?

Los nuevos principios, resoluciones y directrices elaboradas por COPUOS y sus Conferencias, son de carácter no vinculante y en este sentido sujeto a la voluntad de aplicación de los Estados miembros, pudiendo ser ejecutadas a pesar de que este no sea signatario, miembro o haya ratificado alguno de los cinco tratados que componen el Corpus Iuris Spatialis. Sin embargo, es necesario denotar que estos principios y directrices han sido elaborados en coherencia con las disposiciones de los Tratados, siendo complementarias para su aplicación en la actualidad, permitiendo la adecuación del instrumento al contexto vigente y desarrollo tecnológico operante.

1.2 Are such non-legally binding instruments sufficiently complementing the legally binding treaties for the application and implementation of rights and obligations under the legal regime of outer space?

Considerando el espíritu de complementariedad de los instrumentos en mención, en primera instancia no sería necesario la codificación de nuevos instrumentos. Sin embargo, en coherencia con la relevancia de las materias que tratan los elementos no vinculantes, se estima de mayor efectividad el contar con nuevos Tratados que permitan la inclusión de estas materias en una categoría de mayor relevancia y como asuntos del corpus iuris Spatialis.

1.3 What are the perspectives for the further development of the five United Nations Treaties on outer space?

Las perspectivas para el desarrollo futuro es la codificación de nuevos instrumentos jurídicamente vinculantes que permitan la regulación de las nuevas dinámicas en espacio ultraterrestre, incluida la manifestación del conflicto y sus mecanismos de resolución pacífica.

2. United Nations treaties on outer space and provisions related to the Moon and other celestial bodies

2.1 Do the 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 (Outer Space Treaty) constitute a sufficient legal framework for the use and exploration of the Moon and other celestial bodies or are there legal gaps in the treaties (the Outer Space Treaty and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement))?

En el Tratado en comento, por su data de codificación, no se contempla los usos de los recursos minerales/naturales presentes en el subsuelo celeste, que teniendo inicial uso científico deriven en actividad comercial, por lo cual no permite, a la luz del Tratado, la regulación sobre el uso y usufructo de éstos, dejando en laguna jurídica la actividad minera celeste.

2.2 What are the benefits of being party to the Moon Agreement?

Permite a los Estados incrementar las bases de confianza y transparencia respecto a sus intenciones y buena fe en el desarrollo de programas de exploración espacial, distendiendo el conflicto internacional, sobre todo en el trascendido de potenciales emplazamientos de bases lunares como actividad de los programas espaciales de exploración.

2.3 Which principles or provisions of the Moon Agreement should be clarified or amended in order to allow for wider adherence to it by States?

- Principio de uso científico de recursos naturales de superficie y subsuelo lunar: en consideración del impacto medioambiental y los efectos sobre la actividad extractivista en la Tierra, debería tenderse a la prohibición de la misma con fines comerciales en los cuerpos celestes, incluida la Luna, o en su defecto, establecer la prioridad de los recursos terrestres por sobre los celestes.
- Principio de uso pacífico de las actividades lunares y prohibición de emplazamiento de armamento nuclear o de destrucción masiva: Debe aclararse, a la luz de los avances tecnológicos, la tipología de armas que no puede ser emplazada en superficie lunar, existiendo para ello la opción de elaborar un protocolo complementario respecto al control de armas ultraterrestres en superficie de cuerpos celestes inclusive la luna.
- Principio de sustentabilidad en la actividad lunar: Es necesario establecer mecanismos de control, efectivos, respecto a las actividades lunares en su aspecto medioambiental. Ello debido a que en la medida que esto no exista, dada la imposibilidad para la mayoría de los Estados partes, en auditar efectivamente el estado situacional de la superficie lunar, la carencia de este instrumento desincentiva la necesidad de ser parte del Acuerdo, dado que no existen garantías efectivas de la preservación de la luna para futuras generaciones.

3. International responsibility and liability

3.1 Could the notion of “fault”, as featured in articles III and IV of the Convention on International Liability for Damage Caused by Space Objects (Liability Convention), be used for sanctioning non-compliance by a State with the resolutions related to space activities adopted by the General Assembly or its subsidiary bodies, such as Assembly resolution 47/68, on the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, and the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space? In other words, could non-compliance with resolutions adopted by the General Assembly or with instruments adopted by its subsidiary bodies related to space activities be considered to constitute “fault” within the meaning of articles III and IV of the Liability Convention?

La culpa, en primera instancia como acepción positivista, contenida en los artículos III y IV del Convenio sobre la Responsabilidad Internacional por Daños Causados por Objetos Espaciales (CRIDCOE), derivada del incumplimiento o violación consciente de los principios y acciones pactadas, de cuya acción derive el daño o perjuicio de otro miembro parte del Tratado, es extensible al Acuerdo de la Luna, por lo menos en los principios establecidos con claridad por la comunidad internacional y que en cincuenta años no han producido reclamaciones,

observaciones o enmiendas a las disposiciones relativas a las acciones y conductas determinadamente prohibidas en el desarrollo de una misión lunar, cuyas primeras etapas son además complementarias en regulación por el CRIDCOE (hasta el abandono de órbita GEO en tránsito hacia la luna) y el Acuerdo de Salvamento y Rescate.

Esto es posible por dos factores determinantes: el primero es la presunción de conciencia y conocimiento de las disposiciones del Tratado por parte del Estado parte al minuto de adherir y/o firmar este Tratado, dado que, por este simple acto de

adquisición de vinculación jurídica y responsabilidad, presupone el conocimiento de las prohibiciones y disposiciones de fondo del instrumento de norma internacional y el sometimiento de su voluntad soberana a cumplirlo.

Por una segunda arista, el tiempo transcurrido en la vida del Acuerdo de la Luna, así como su condición de “fundacional” (como parte del *Corpus Iuris Spatialis*) respecto a las actividades y conductas reguladas en los cuerpos celestes, incluida la luna, le permite ser creador de costumbre internacional, por lo cual su mera existencia y la carencia de denuncias, reclamaciones u otros mecanismos internacionales para orientar la discusión y re-codificación del instrumento, no podría el “culpable” de una acción que termine en daño a una tercera parte, alegar su inconformidad con las disposiciones de fondo o desconocimiento de la misma.

En una segunda acepción jurídica del término culpa, considerando ésta como la “desviación de un estándar de responsabilidad”, es decir de negligencia en el actuar, las acciones en la Luna, que se encuentren claramente reguladas por las disposiciones del Tratado, cuyo incumplimiento parcial o de bajo cuidado resultaren en daño para un tercero, podrían ser catalogados bajo la concepción de culpa contenida en los artículos III y IV del CRIDCOE, sin embargo, la discusión para poder adjudicar la culpa y en particular el dolo en el actuar negligente sería extenso, toda vez que no existen protocolos complementarios que evalúen plenamente la acción diligente en actividades lunares. Un ejemplo de ello es la minería lunar: ¿Cómo se mide la actividad extractiva minera que, con fines iniciales científicos, no derive por negligencia en una modificación al medioambiente lunar? Frente a este potencial conflicto de derecho, se aconseja el avanzar hacia la elaboración de protocolos de implementación del Acuerdo de la Luna, orientados a la medición objetivizada del actuar y conductas reguladas por el Tratado.

3.2 Could the notion of “damage”, as featured in article I of the Liability Convention, be used to cover loss resulting from a manoeuvre performed by an operational space object in order to avoid collision with a space object or space debris not complying with the Space Debris Mitigation Guidelines of the Committee?

No plenamente, debido a que las Directrices para la Reducción de Desechos Espaciales, en su naturaleza no vinculante, no resultan obligatorias para los Estados partes del CRIDCOE y este no avanza sobre la idea de estándares mínimos para considerar la acción, a lo menos, como diligente.

3.3 Are there specific aspects related to the implementation of international responsibility, as provided for in article VI of the Outer Space Treaty, in connection with General Assembly resolution 41/65, on the Principles Relating to Remote Sensing of the Earth from Outer Space?

Sí, en el sentido de que por tanto los Estados no desregularicen la actividad de sus privados, estas plataformas satelitales deberían estar disponibles por parte del Estado que auspicia su bandera, en ser sujeto tanto de responsabilidad respecto a sus acciones, potenciales daños y condiciones de uso pacífico en las operaciones, así como para ser empleados en beneficios de la humanidad según los términos que la resolución 41/65.

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?**

Se estima necesario incluir dentro del concepto de lanzamiento, aquella realidad inherentemente realizada por el ser humano, se de forma autónoma o por medio del uso de tecnologías existentes, cuya intencionalidad final, sea el emplazamiento de un objeto satelital en órbita ultraterrestre.

- 3.4 Is there a need for traffic rules in outer space as a prerequisite to a fault-based liability regime?**

Más que una norma de “tráfico” espacial, es necesario regular las condiciones de órbita. Ello debido a que la noción de “trafico” implican solicitudes de acceso y desplazamiento en órbitas, situación que podría afectar la soberanía de las mismas operaciones si es que este control fuera ejecutado por un Estado en su particularidad. Frente a ello, es de mayor eficacia el contar con protocolos para el uso de las órbitas terrestres, orientados a garantizar seguridad operacional, intercambio de información y medición objetiva de las conductas que potencialmente pudieran incurrir en daño.

4. Registration of space objects

- 4.1 Is there a legal basis to be found in the existing international legal framework applicable to space activities and space objects, in particular the provisions of the Outer Space Treaty and the Convention on Registration of Objects Launched into Outer Space (Registration Convention), which would allow the transfer of the registration of a space object from one State to another during its operation in orbit?**

Sí, el Acuerdo Intergubernamental de 1998 entre el Gobierno de Canadá, los países miembros de la Agencia Espacial Europea, Japón, Rusia y Estados Unidos relativo a la Cooperación sobre la Estación Espacial Civil Internacional, en cuyo Artículo VI “Propiedad de elementos y equipos” se establece que “los asociados, por conducto de sus organismos de cooperación respectivos, serán propietarios de los elementos que respectivamente suministren...Se permite la transferencia de propiedad en órbita de los elementos o del equipo que se encuentre dentro o sobre la estación espacial(...)la transferencia a otro asociado deberá ser previamente notificada a los demás asociados(...)Cuando la transferencia se haga a un no asociado o a una entidad privada bajo la jurisdicción de un no asociado necesitará el consentimiento previo de los demás asociados”

En este sentido, los objetos sobre los cuales versa el Tratado son en su esencia objetos espaciales y susceptibles de convertirse en desecho espacial, materia en espíritu regulada por el Convenio de Registro respecto a su aspiración a regular y establecer el daño o perjuicio que un tercero pudiera sufrir por las operaciones espaciales de un actor en particular.

- 4.2 How could a transfer of activities or ownership involving a space object during its operation in orbit from a company of the State of registry to a company of a foreign State be handled in compliance with the existing international legal framework applicable to space activities and space objects?**

Esta materia podría tratarse en conformidad con la Resolución 62/101 del 17.DIC.2007 de la Asamblea General de Naciones Unidas, cuya recomendación señala que, en materias de transferencia de un objeto espacial en órbita, los Estados suministren toda modificación a la información original entregada al Registro que

debe suministrarse al Secretario General de las Naciones Unidas. En este sentido, debe especificarse: fecha de transferencia de control, identificación de nuevo propietario o entidad que explotará la plataforma, cambios de posición orbital (si los hubiere) y todo cambio respecto a la misión y función de la plataforma.

4.3 What jurisdiction and control are exercised, as provided for in article VIII of the Outer Space Treaty, over a space object registered by an international intergovernmental organization in accordance with the provisions of the Registration Convention?

La jurisdicción y control ejercido por una plataforma espacial registrado por una organización internacional intergubernamental, conforme al convenio sobre el Registro, en un inicio reafirma el principio de jurisdicción cuasi-territorial del Derecho Internacional en materias espaciales en general, suplementando dicho principio con la jurisdicción personal que cada Estado pueda tener sobre la plataforma en cuestión (más si lleva tripulación nacional a bordo), como es en el caso de la Estación Espacial Internacional.

Esta realidad es potencialmente extensible a cualquier plataforma que se registre, debido a que el concepto de jurisdicción y control hace referencia a la consecuencia jurídica de detentar o ejercer la jurisdicción y el control sobre un objeto espacial, la cual es la aplicabilidad del Derecho nacional del Estado de registro al objeto lanzado al espacio y la tripulación que pudiera llevar. En síntesis, se ejerce la jurisdicción y el control de quienes resultan vinculados por el Convenio sobre el Registro respecto a la responsabilidad particular o solidaria respecto a la plataforma espacial en cuestión.

4.4 Does the concept of megaconstellations raise legal and/or practical questions, and is there a need to react with an adapted form of registration?

Sí, debido a que las megaconstelaciones, en materias de operación (maniobras) se comportan como una plataforma de mayores dimensiones, pudiendo envolver en ella plataformas espaciales terceras. En este sentido, es necesario abordar los riesgos operacionales y medioambientales de las megaconstelaciones en una modalidad de registro adaptada que refleje las potencialidades y responsabilidades en este tipo de operaciones de menor coste económico pero mayor impacto a las actividades en órbitas terrestres.

4.5 Is there a possibility, in compliance with the existing international legal framework, based on the existing registration practices, of introducing a registration “on behalf” of a State of a launch service customer, based on its prior consent? Would this be an alternative tool to react to megaconstellations and other challenges in registration?

No, porque el acto de registro es un acto jurídico unilateral, cuya responsabilidad no es transferible por la simple acción de un tercero. En dicho sentido, a fin de evitar conflictos relativos a la responsabilidad devenida del acto de registro de una plataforma espacial, a consecuencia del incremento del riesgo operacional o de incurrir en la “culpa” frente a un potencial daño a terceros, es preferible mantener el trámite de registro como una potestad única e intransferible del Estado.

5. International customary law in outer space

5. Are there any provisions in the five United Nations treaties on outer space that could be considered to form part of international customary law and, if yes, which ones? Could you explain the legal and/or factual elements on which your answer is based?

No, no observamos elementos en el corpus iuris Spatialis que a la fecha puedan considerarse parte del derecho internacional consuetudinario, principalmente como consecuencia de la baja penetración de estos elementos jurídicos sobre la comunidad internacional e inclusive sobre los operadores no sujetos del derecho internacional

público, que ha servido como vía de escape a posibles responsabilidades por parte del Estado.

6. Proposal for other questions

6. Please suggest additional questions that could be inserted into the set of questions above to meet the objective of the UNISPACE+50 thematic priority on the legal regime of outer space and global space governance.

- a. Se propone la inclusión de la pregunta respecto a la definición nacional de límites naturales del espacio ultraterrestre.
- b. ¿Debería regularse en forma particular el uso y usufructo, inclusive la soberanía, de las órbitas terrestres en consideración del Tratado de 1967?

No, debido a que en consideración del Tratado el espacio ultraterrestre no es susceptible de procesos de reivindicación y/o reclamación soberana.

Finland

[Original: English]
[Received on 1 April 2020]

Set of questions provided by the Chair of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, taking into account the UNISPACE+50 process

1. The legal regime of outer space and global space governance

1.1 What is the main impact on the application and implementation of the five United Nations treaties on outer space of additional principles, resolutions and guidelines governing outer space activities?

Finland believes that the United Nations treaties on outer space are the cornerstone of international space law, and together with resolutions and other instruments adopted by the United Nations General Assembly, and the Committee on the Peaceful Uses of Outer Space (COPUOS), create the basis for an international framework for the regulation of space activities. Finland believes that having binding guidance at international level for the conduct of space activities brings predictability and creates conditions for tackling global problems. Thus, furthering a comprehensive rule-based international regime could avoid and overcome fragmentation in the regulation of international space activities. Having binding guidance at international level could create legal certainty, which could further promote the industry by providing a clear and more predictable operating environment.

In parallel, Finland stresses the importance of effective implementation of non-legally binding instruments, in particular with regard to orbital space debris mitigation, as we believe that this is currently the best way to forward an international regime for sustainable use and safe conduct of outer space activities. The non-legally binding instruments may support the underlying objectives of promoting international co-operation in the space sector and enhancing peaceful nature of and responsible behaviour in the conduct of space activities. The non-legally binding instruments can help the international community to address some of the challenges that come along with the technological development by providing a concretized way forward to the evolving space sector. However, it should be noted that such instruments are a heterogeneous group and consist of various different documents with differing contents and characteristics.

Finland recognizes that one of the most significant impacts of non-legally binding instruments is attained through effective implementation at national and international level. Finland notes with appreciation that requirements for space debris mitigation seem to have become a recurring theme in recent national space laws, showing the willingness of States to adhere to the respective non-legally binding instruments and

the principles contained therein. For example, while voluntary and non-legally binding at international level, the Space Debris Mitigation Guidelines of COPUOS as well as the relevant guidelines and standards by the Inter-Agency Space Debris Coordination Committee (IADC) and International Organization for Standardization (ISO) can have a strong impact in ensuring the safety and sustainability of space activities through their application, implementation and enforcement at national level.

1.2 Are such non-legally binding instruments sufficiently complementing the legally binding treaties for the application and implementation of rights and obligations under the legal regime of outer space? Is there a need for additional actions to be taken?

Space governance through non-legally binding instruments involves, in parallel with the international processes, national and international implementation of such instruments, which benefit from exchange of experiences and best practices with regard to such implementation. Continuous dialogue in a multilateral forum such as COPUOS provides the best possibilities for fruitful and effective international cooperation and information sharing in order to assure that the application of the United Treaties on outer space is secured as unified as possible. In this regard, we are pleased that a dedicated working group on the long-term sustainability of outer space activities will be established with a mandate to a) identify and study challenges and consider possible new guidelines for the long-term sustainability of space activities; b) share experiences, practices and lessons learned from voluntary national implementation of the adopted guidelines; and c) raise awareness and build capacity, in particular among emerging space nations and developing countries.² We believe that such dedicated working group may act to ensure more unified interpretation of the LTS Guidelines and enhance coherence in the regulation of space activities by providing a dedicated mechanism for information sharing and cooperation at international level. Even though the working group is established under the Scientific and Technical Subcommittee, maintaining a strong link to the Legal Subcommittee, inter alia in accordance with the UNISPACE +50 Thematic Priority 2, is of great importance and can help to overcome issues of normative uncertainty and fragmentation in international space governance.

1.3 What are the perspectives for the further development of the five United Nations treaties on outer space?

Issues such as technological development and the NewSpace reality require States to adapt their processes and regulatory frameworks in assuring compliance with their treaty obligations, while considering their national requirements and interests. Finland believes the principles set out in the Outer Space Treaty continue to form the basis for current and future regulation for space activities and supports furthering of common interpretation on the current international regime. We believe that continuous dialogue in a multilateral forum provides the best possibilities for international cooperation, coordination and information sharing, all of which we consider to be of great importance in ensuring the peaceful exploration and use of outer space.

2. United Nations treaties on outer space and provisions related to the Moon and other celestial bodies

2.1 Do the 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 (Outer Space Treaty) constitute a sufficient legal framework for the use and exploration of the Moon and other celestial bodies or are there legal gaps in the treaties (the Outer Space Treaty and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement))?

Finland acknowledges the United Nations Treaties on outer space as the cornerstone of international space law forming the primary international legal source for the governance of outer space activities and specifically underscores the essential

importance of the Outer Space Treaty in providing fundamental principles to guide all space activities in order to ensure peaceful exploration and use of outer space. However, recent developments with regard to space resource activities have shown that the relationship between freedom of use, set out in Article I of the Outer Space Treaty, and the principle of non-appropriation, set forth in Article II, is not clear, which may entail both legal and practical problems especially with respect to the increasing number of actors and objects planning simultaneous operations on the surface of the Moon or other celestial bodies.

The Outer Space Treaty does not expressly address space resource activities or distinguish natural resources of celestial bodies in verbatim but refers broadly to a freedom of exploration, use and scientific research in outer space including the celestial bodies, and sets out a principle of non-appropriation. While the Moon Agreement explicitly mentions natural resources of celestial bodies and exploitation thereof (Art. 11), the issue of space resource activities is not decisively solved in the Moon Agreement, but left to be dealt with in the future, when such activities are close to become a reality or have already done so (Art. 11(5) and 18 of the Moon Agreement). Consequently, the Outer Space Treaty and the Moon Agreement allow use of celestial bodies, but provide no provisions clearly determining, for example, the magnitude, extent, duration or terms of use in such a manner that is to assure activities on celestial bodies to materialize free from conflicts and harmful interference paying due regard to the space freedoms and corresponding interests of others. Thus, it is a good sign that the issue of exploration, exploitation and utilization of space resources has been deliberated in the Legal Subcommittee as a single item for discussion,³ and there are further activities such as the informal consultations to advance the common understanding and interpretation of the principles. Advancing the development of a common understanding and clear rules at international level can alleviate uncertainty and create predictability needed for the development of space activities, including space resource activities.

Germany

[Original: English]
[Received on 20 January 2020]

Set of questions provided by the Chair of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, taking into account the UNISPACE+50 process

1. **The legal regime of outer space and global space governance**
 - 1.1 **What is the main impact on the application and implementation of the five United Nations treaties on outer space of additional principles, resolutions and guidelines governing outer space activities?**
 - 1.2 **Are such non-legally binding instruments sufficiently complementing the legally binding treaties for the application and implementation of rights and obligations under the legal regime of outer space? Is there a need for additional actions to be taken?**
 - 1.3 **What are the perspectives for the further development of the five United Nations treaties on outer space?**
2. **United Nations treaties on outer space and provisions related to the Moon and other celestial bodies**

In addition to our comments contained in A/AC.105/C.2/2017/CRP.6 we would like to observe the following:

2.1 Do the 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 (Outer Space Treaty) constitute a sufficient legal framework for the use and exploration of the Moon and other celestial bodies or are there legal gaps in the treaties (the Outer Space Treaty and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement))?

We believe that the five United Nations treaties on outer space form the constitutional basis for present and future space activities. Although we see rapid developments in the way we explore and use outer space, what remains unchanged and consistently valid is the rule of international space law governing space activities in a comprehensive manner regardless of their origin or purpose. The principles enshrined in the five United Nations treaties on outer space are to be safeguarded and continue to provide the legal framework for the exploration and use of the Moon and other celestial bodies. In consequence, particularly activities related to the exploration, exploitation and utilization of space resources are to be in accordance with and governed by international law.

It is our understanding that an international legal regime for the exploration, exploitation and utilization of space resources is the most appropriate means for ensuring that space resource activities are conducted in conformity with the principles and rules of international space law. Germany therefore supports the development of a specific international regime for the exploration, exploitation and utilization of space resources on the basis of internationally agreed rules and standards. Such regime shall facilitate the orderly and safe development, rational management and expansion of opportunities in the use of space resources. It shall appropriately take into account the efforts of countries contributing to the exploration, exploitation and utilization of celestial bodies and ensure that all countries irrespective of their degree of economic or scientific development benefit from these activities, without taking away the investment incentives for public and private space flight. Last but not least, due account must be given to the long-term sustainability and environmental compatibility of such activities.

In our view, COPUOS is the competent multilateral institution and primary forum for the elaboration of an international regime for the exploration, exploitation and utilization of space resources.

2.2 What are the benefits of being a party to the Moon Agreement?

2.3 Which principles or provisions of the Moon Agreement should be clarified or amended in order to allow for wider adherence to it by States?

3. International responsibility and liability

3.1 Could the notion of “fault”, as featured in articles III and IV of the Convention on International Liability for Damage Caused by Space Objects (Liability Convention), be used for sanctioning non-compliance by a State with the resolutions related to space activities adopted by the General Assembly or its subsidiary bodies, such as Assembly resolution 47/68, on the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, and the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space? In other words, could non-compliance with resolutions adopted by the General Assembly or with instruments adopted by its subsidiary bodies related to space activities be considered to constitute “fault” within the meaning of articles III and IV of the Liability Convention?

3.2 Could the notion of “damage”, as featured in article I of the Liability Convention, be used to cover loss resulting from a manoeuvre performed by an operational space object in order to avoid collision with a space object or space debris not complying with the Space Debris Mitigation Guidelines of the Committee?

- 3.3 Are there specific aspects related to the implementation of international responsibility, as provided for in article VI of the Outer Space Treaty, in connection with General Assembly resolution 41/65, on the Principles Relating to Remote Sensing of the Earth from Outer Space?**
- 3.4 Is there a need for traffic rules in outer space as a prerequisite to a fault-based liability regime?**
- 4. Registration of space objects**
- 4.1 Is there a legal basis to be found in the existing international legal framework applicable to space activities and space objects, in particular the provisions of the Outer Space Treaty and the Convention on Registration of Objects Launched into Outer Space (Registration Convention), which would allow the transfer of the registration of a space object from one State to another during its operation in orbit?**
- 4.2 How could a transfer of activities or ownership involving a space object during its operation in orbit from a company of the State of registry to a company of a foreign State be handled in compliance with the existing international legal framework applicable to space activities and space objects?**
- 4.3 What jurisdiction and control are exercised, as provided for in article VIII of the Outer Space Treaty, over a space object registered by an international intergovernmental organization in accordance with the provisions of the Registration Convention?**
- 4.4 Does the concept of megaconstellations raise legal and/or practical questions, and is there a need to react with an adapted form of registration?**

We refer to our replies under A/AC.105/C.2/2017/CRP.6 of 2017 and A/AC.105/C.2/2015/CRP.11 of 2015. In addition we reply as follows:

The concept of registration of space objects is one of the cornerstones of UN space law, originating already from UNGA Resolution 1721B (XVI) of 20 December 1961. The basic consequence of registration of space objects is a clear allocation of ‘jurisdiction and control’ in outer space, an environment not subject to national appropriation by any means. The concept has in mind a limited number of space objects deriving from one concrete launch event. The upcoming mega-constellations challenge this concept in legal as well as in practical aspects.

A mega-constellation with hundreds or thousands of satellites is built up and renewed in a sequence of different launch events. Each launch event might have a different combination of launching states, since there might be different launching facilities and different secondary payloads/space objects involved. Therefore, the responsibility structure becomes unclear by complexity. It seems necessary to identify the overall responsible launching state for the constellation as such that will be the registering state for each element of the constellation.

The basic principles of the registration system for space objects should stay untouched. This means: a) registration by one of the launching states of the constellation in question, b) clear identification of the relevant launching states of the various space objects of the constellation for registration as well as for liability purposes and c) corresponding national registration.

It might be adequate to develop a dedicated additional registration practice resolution containing recommendations for the registration of mega-constellations in order to facilitate harmonized registration practices.

- 4.5 Is there a possibility, in compliance with the existing international legal framework, based on the existing registration practices, of introducing a registration “on behalf” of a State of a launch service customer, based on its prior consent? Would this be an alternative tool to react to megaconstellations and other challenges in registration?**

5. International customary law in outer space

5. Are there any provisions in the five United Nations treaties on outer space that could be considered to form part of international customary law and, if yes, which ones? Could you explain the legal and/or factual elements on which your answer is based?

6. Proposal for other questions

6. Please suggest additional questions that could be inserted into the set of questions above to meet the objective of the UNISPACE+50 thematic priority on the legal regime of outer space and global space governance.

Morocco

[Original: French]
[Received on 7 April 2021]

Set of questions provided by the Chair of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, taking into account the UNISPACE+50 process

Morocco has signed and ratified the five United Nations treaties on outer space. The treaties constitute an appropriate legal code governing space activities. However, this international legal framework must be continuously discussed and strengthened in order to take into account technological developments and the emergence of new actors and activities and to consolidate international cooperation and safeguard the interests of all States with regard to the use and exploitation of outer space and its resources.

Nicaragua

[Original: Spanish]
[Received on 4 March 2021]

Set of questions provided by the Chair of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, taking into account the UNISPACE+50 process

1. The legal regime of outer space and global space governance

1.1 What is the main impact on the application and implementation of the five United Nations treaties on outer space of additional principles, resolutions and guidelines governing outer space activities?

The principles, resolutions and guidelines governing outer space activities should be coordinated with the application of the principles set out in the five United Nations treaties, as those treaties constitute the overarching framework. Given the dynamism and development of space activities, specific regulations are essential. In addition, issues such as access for developing countries to scientific research, environmental protection and gender equality need to be addressed.

1.2 Are such non-legally binding instruments sufficiently complementing the legally binding treaties for the application and implementation of rights and obligations under the legal regime of outer space? Is there a need for additional actions to be taken?

The non-legally binding instruments do not comprehensively complement the exercise of rights and fulfilment of obligations under the legal regime governing outer space. Additional actions are therefore necessary in order to update those instruments

in such a way that they take into account current new trends and possible technological and other developments in the future.

1.3 What are the perspectives for the further development of the five United Nations treaties on outer space?

As a first step, basic concepts such as suborbital travel, outer space, airspace and the character and utilization of the geostationary orbit should be clearly defined with a view to more comprehensive regulation in order to ensure correct application and the delimitation of the relevant responsibilities. In other words, the five United Nations treaties, as the overarching framework, should be developed through specific regulations, without prejudice to the role of ITU.

2. United Nations treaties on outer space and provisions related to the Moon and other celestial bodies

2.1 Do the 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 (Outer Space Treaty) constitute a sufficient legal framework for the use and exploration of the Moon and other celestial bodies or are there legal gaps in the treaties (the Outer Space Treaty and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement))?

The Treaty establishes general provisions for the use and exploration of the Moon and other celestial bodies; however, it is not sufficient for the more precise regulation of certain specific issues. Given the ever-changing nature of such activities, it is necessary to elaborate on the principles established in the Treaty.

2.2 What are the benefits of being a party to the Moon Agreement?

Mainly the collaboration between States in terms of humanitarian, scientific, safety-related and legal activities.

2.3 Which principles or provisions of the Moon Agreement should be clarified or amended in order to allow for wider adherence to it by States?

In general, none of the principles or provisions need to be clarified or amended.

3. International responsibility and liability

3.1 Could the notion of “fault”, as featured in articles III and IV of the Convention on International Liability for Damage Caused by Space Objects (Liability Convention), be used for sanctioning non-compliance by a State with the resolutions related to space activities adopted by the General Assembly or its subsidiary bodies, such as Assembly resolution 47/68, on the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, and the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space? In other words, could non-compliance with resolutions adopted by the General Assembly or with instruments adopted by its subsidiary bodies related to space activities be considered to constitute “fault” within the meaning of articles III and IV of the Liability Convention?

We consider that the notion of “fault” is correct on the basis of articles III and IV.

3.2 Could the notion of “damage”, as featured in article I of the Liability Convention, be used to cover loss resulting from a manoeuvre performed by an operational space object in order to avoid collision with a space object or space debris not complying with the Space Debris Mitigation Guidelines of the Committee?

Where damage as defined in article I is caused, that damage is attributable in accordance with the terms of the Liability Convention.

3.3 Are there specific aspects related to the implementation of international responsibility, as provided for in article VI of the Outer Space Treaty, in connection with General Assembly resolution 41/65, on the Principles Relating to Remote Sensing of the Earth from Outer Space?

Yes: principle XIV of resolution 41/65 is consistent with the provisions of article VI of the Treaty insofar as the State party is responsible for the activities of non-governmental entities in outer space.

3.4 Is there a need for traffic rules in outer space as a prerequisite to a fault-based liability regime?

Yes: such rules are necessary for the determination of liability in each case.

4. Registration of space objects

4.1 Is there a legal basis to be found in the existing international legal framework applicable to space activities and space objects, in particular the provisions of the Outer Space Treaty and the Convention on Registration of Objects Launched into Outer Space (Registration Convention), which would allow the transfer of the registration of a space object from one State to another during its operation in orbit?

There is no legal basis for the transfer of ownership of a space object during its operation in orbit.

4.2 How could a transfer of activities or ownership involving a space object during its operation in orbit from a company of the State of registry to a company of a foreign State be handled in compliance with the existing international legal framework applicable to space activities and space objects?

Under article II, paragraph 2, the launching States must decide which of them will register the space object prior to its launch; that is, transfer is not provided for, but any agreements that the States may have concluded are unaffected.

4.3 What jurisdiction and control are exercised, as provided for in article VIII of the Outer Space Treaty, over a space object registered by an international intergovernmental organization in accordance with the provisions of the Registration Convention?

The Treaty applies to any international intergovernmental organization engaged in outer space activities if the organization declares its acceptance of the rights and obligations provided for in the Convention and the jurisdiction of the State party indicated in the Register is exercised.

4.4 Does the concept of megaconstellations raise legal and/or practical questions, and is there a need to react with an adapted form of registration?

The concept raises practical questions; the form of registration could be adapted according to the uses or purpose of the megaconstellation.

4.5 Is there a possibility, in compliance with the existing international legal framework, based on the existing registration practices, of introducing a registration “on behalf” of a State of a launch service customer, based on its prior consent? Would this be an alternative tool to react to megaconstellations and other challenges in registration?

Such a specific scenario requires further study.

5. International customary law in outer space

5. Are there any provisions in the five United Nations treaties on outer space that could be considered to form part of international customary law and, if yes, which ones? Could you explain the legal and/or factual elements on which your answer is based?

This issue requires a thorough doctrinal analysis of law in view of the diversity of opinions and arguments – and thus the lack of consensus – as to whether international customary law might constitute a source of space law, especially given that technology evolves rapidly and regulations are developed a posteriori

6. Proposal for other questions

6. Please suggest additional questions that could be inserted into the set of questions above to meet the objective of the UNISPACE+50 thematic priority on the legal regime of outer space and global space governance.

We do not have any comments on this point.

Philippines

[Original: English]
[Received on 6 April 2021]

Set of questions provided by the Chair of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, taking into account the UNISPACE+50 process

1. The legal regime of outer space and global space governance

1.1 What is the main impact on the application and implementation of the five United Nations treaties on outer space of additional principles, resolutions and guidelines governing outer space activities?

The additional principles, resolutions, and guidelines governing outer space activities aim to supplement the five United Nations treaties in their operation and application. Since these principles, resolutions, and guidelines are generally non-legally binding, domestic non-compliance remains a pressing problem.

Nevertheless, these treaties, principles, resolutions, and guidelines provide a benchmark of minimum standards for the consideration of emergent space-faring nations like the Philippines.

1.2 Are such non-legally binding instruments sufficiently complementing the legally binding treaties for the application and implementation of rights and obligations under the legal regime of outer space? Is there a need for additional actions to be taken?

The non-legally binding instruments, as they currently stand, have room for improvement in order to better complement the legally binding treaties for the applications and implementation of rights and obligations under the legal regime of outer space. Follow-up procedures such as provisions on transparency, reporting, periodic reviews, mechanisms that require national action plans over time, and sanctions for non-compliance could be added as enforcement mechanisms to ensure compliance of these regulations.

1.3 What are the perspectives for the further development of the five United Nations treaties on outer space?

While the Philippines recognizes that it is difficult to amend the provisions of these treaties, further development must be made on proper follow-up procedures and mechanisms to fully and effectively implement these treaties.

To this end, the Philippines suggests the development of concrete frameworks operationalizing the application of space law principles on space debris mitigation, long term sustainability of outer space activities, and space traffic management among others.

In addition, the Philippines is undertaking the ratification or accession of the five (5) UN treaties on outer space following the coming into effect of the Philippine Space Act on 03 September 2019. The table below summarizes the current status of the five (5) UN treaties on outer space:

“Outer Space Treaty” Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies

- (1967) Signed but not yet ratified

“Rescue Agreement” Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects

- (1968) Signed but not yet ratified

“Liability Convention” Convention on International Liability for Damage Caused by Space Objects

- (1972) Signed but not yet ratified

“Registration Convention” Convention on Registration of Objects Launched into Outer Space

- Not signed or ratified

“Moon Agreement” Agreement Governing the Activities of States on the Moon and Other Celestial Bodies

- 1980: Date of signature 1981: Date of ratification 1984: Entry into force

2. **United Nations treaties on outer space and provisions related to the Moon and other celestial bodies**
 - 2.1 **Do the 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 (Outer Space Treaty) constitute a sufficient legal framework for the use and exploration of the Moon and other celestial bodies or are there legal gaps in the treaties (the Outer Space Treaty and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement))?**

The provisions of the Outer Space Treaty may be further improved especially now that space is becoming accessible to all, not only to the government sector but also to the private industry.

For one, there have been discussions about the definition of peaceful purposes in the Outer Space Treaty. One interpretation is that it means “non-military” in any regard. Another school of thought holds that peaceful merely means “non-aggressive”. Although the latter interpretation is more acceptable in the current trend now, it could have been more helpful if this matter may be cleared.

Also, the term “astronaut” has not been defined with sufficient clarity. Considering that there are salient provisions in the treaty with regard to the treatment of astronauts, a definition of who may be classified as an astronaut may be necessary.

On the Moon Agreement, while the same may constitute a sufficient legal framework for the use and exploration of the Moon and other celestial bodies, the fact that it has not been ratified by many States that is currently engaged in self-launched human spaceflight constitutes the biggest legal gap in its implementation.

2.2 What are the benefits of being a party to the Moon Agreement?

The Philippines, as a country that is yet to become a space-faring nation, can benefit from being a party to the Moon Agreement through the following provisions:

(1) The exploration and use of the moon shall be the province of all mankind and shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development (Article 4.1);

(2) States Parties shall inform the public and the international scientific community of the results of each mission (Article 5.1);

(3) In carrying out activities under this Agreement, States Parties shall promptly inform the public and the international scientific community, of any phenomena they discover in outer space, including the moon, which could endanger human life or health, as well as of any indication of organic life (Article 5.3);

(4) In carrying out scientific investigations, the States Parties shall have the right to collect on and remove from the moon samples of its mineral and other substances. States Parties shall have regard to the desirability of making a portion of such samples available to other interested States Parties for scientific investigation (Article 6.2);

(5) States Parties shall report to other States Parties concerning areas of the moon having special scientific interest in order that, without prejudice to the rights of other States Parties, consideration may be given to the designation of such areas as international scientific preserves for which special protective

arrangements are to be agreed upon in consultation with the competent bodies of the United Nations (Article 7.3);

(6) The moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means (Article 11.2); and

(7) States Parties shall bear international responsibility for national activities on the moon, 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 in this Agreement (Article 14.1).

2.3 Which principles or provisions of the Moon Agreement should be clarified or amended in order to allow for wider adherence to it by States?

As a whole, the Moon Agreement intends to have an equitable and coordinated management of celestial resources among its Party States. However, this may also be a factor on why major spacefaring nations seem to be dissuaded from being a party to the instrument.

The provisions regarding the treatment of resources gathered from the Moon and other celestial bodies remain insufficient. While Article 11 states that States Parties hereby undertake to establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources of the moon, the same has yet to be done.

3. International responsibility and liability

- 3.1 Could the notion of “fault”, as featured in articles III and IV of the Convention on International Liability for Damage Caused by Space Objects (Liability Convention), be used for sanctioning non-compliance by a State with the resolutions related to space activities adopted by the General Assembly or its subsidiary bodies, such as Assembly resolution 47/68, on the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, and the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space? In other words, could non-compliance with resolutions adopted by the General Assembly or with instruments adopted by its subsidiary bodies related to space activities be considered to constitute “fault” within the meaning of articles III and IV of the Liability Convention?**

Non-compliance with resolutions adopted by the General Assembly or with instruments adopted by its subsidiary bodies related to space activities may not be considered to constitute “fault” within the meaning of articles III and IV of the Liability Convention.

- 3.2 Could the notion of “damage”, as featured in article I of the Liability Convention, be used to cover loss resulting from a manoeuvre performed by an operational space object in order to avoid collision with a space object or space debris not complying with the Space Debris Mitigation Guidelines of the Committee?**

Yes, damage may include loss resulting from a manoeuvre performed in order to avoid collision with a space object or space debris not complying with the Space Debris Mitigation Guidelines of the Committee. Under Article I of the Liability Convention, damage refers to the loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations. It does not qualify on what the cause of the damage is, as long as there is loss of life, personal injury, etc under the circumstances mentioned in the Liability Convention. Regardless of the circumstances of the case, when the loss defined in Article I of the Liability Convention has occurred, the same must be considered as “damage.”

- 3.3 Are there specific aspects related to the implementation of international responsibility, as provided for in article VI of the Outer Space Treaty, in connection with General Assembly resolution 41/65, on the Principles Relating to Remote Sensing of the Earth from Outer Space?**

Yes, Principle XIV of the Remote Sensing Principles paraphrases Article VI of the OST with respect to remote sensing activities. Under the Outer Space Treaty, any national activity in outer space, whether such activities are carried on by governmental agencies or by non-governmental entities, shall be the international responsibility of the State Party. This means that any damage or liability arising from any national activity done pursuant to the Principles Relating to Remote Sensing of the Earth from Outer Space must be borne by the State Party.

The thrust of Principle XIV is to extend this responsibility to the State in terms of being compliant with the Principles as well as the remote sensing activities that may not be regarded as space activities.

- 3.4 Is there a need for traffic rules in outer space as a prerequisite to a fault-based liability regime?**

While we recognize the efforts of other space actors in space traffic management, there seems to be no need for traffic rules in outer space as a prerequisite of a fault-based liability regime as of this moment. Considering that there are a lot of uncertainties and uncontrollable factors in outer space, drafting and imposing traffic rules may not be effective in this regard.

Moreover, the Liability Convention in defining “damage” seems to provide enough basis for such fault-based liability regime in that anything that causes loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations, is deemed to be at fault.

4. Registration of space objects

4.1 **Is there a legal basis to be found in the existing international legal framework applicable to space activities and space objects, in particular the provisions of the Outer Space Treaty and the Convention on Registration of Objects Launched into Outer Space (Registration Convention), which would allow the transfer of the registration of a space object from one State to another during its operation in orbit?**

Under the Registration Convention, where there are two or more launching States in respect of any such space object, they shall jointly determine which one of them shall register the object in accordance with paragraph 1 of this Article, bearing in mind the provisions of Article VIII of the Outer Space Treaty. This shall be without prejudice to appropriate agreements concluded or to be concluded among the launching States on jurisdiction and control over the space object and over any personnel thereof.

A reading of this provision reveals that the intent of the Registration Convention is to allow States, through appropriate agreements, to conclude which shall have jurisdiction and control over the space object after it has been launched.

However, the Outer Space Treaty provides, in Article VIII, that a State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. The provision does not specifically provide for situations of transfer of registration. But it may be inferred from the phrase “on whose registry an object launched into outer space is carried” that should such registration be transferred to another State, jurisdiction over the space object will also be transferred to the transferee State.

4.2 **How could a transfer of activities or ownership involving a space object during its operation in orbit from a company of the State of registry to a company of a foreign State be handled in compliance with the existing international legal framework applicable to space activities and space objects?**

The Outer Space Treaty provides that:

(1) State Parties to the Treaty shall bear international responsibility for national activities in outer space, whether such activities are carried on by governmental agencies or by non-governmental entities (Article VI);

(2) State Parties to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object (Article VIII); and

(3) Each State Party to the Treaty that launches or procures the launching of an object into outer space, and each State Party from whose territory or facility an object is launched, is internationally liable for damage (Article VII).

Following the above provisions, a transfer of activities or ownership of a space object during its operation will mean that:

(1) While the transfer of the space object involves non-government entities, the State Party shall remain internationally responsible for its activities;

(2) Despite the transfer, the State Party on whose registry the space object is carried shall retain jurisdiction and control over the object; and

(3) In the event of the transfer of registration of a space object, the State Party that launches or procures the launching of the space object into outer space, and the

State Party from whose territory or facility the space object was launched, shall remain internationally liable for any damage caused by it.

Taking into consideration the above and the answer to the previous question, the transfer of activities or ownership may be implemented by executing appropriate mechanisms between concerned States who are parties to the said transfer. These mechanisms should be forwarded to the UNOOSA for their information and proper action.

4.3 What jurisdiction and control are exercised, as provided for in article VIII of the Outer Space Treaty, over a space object registered by an international intergovernmental organization in accordance with the provisions of the Registration Convention?

Jurisdiction and control over a space object by an international intergovernmental organization may be determined by appropriate agreements concluded or to be concluded among the launching States, as provided for under Article II (2) of the Registration Convention. This is because under Article VII of the same Convention, references to States shall be deemed to apply to any international intergovernmental organization which conducts space activities if the organization declares its acceptance of the rights and obligations provided for in this Convention and if a majority of the States members of the organization are States Parties to this Convention and to the Outer Space Treaty.

4.4 Does the concept of megaconstellations raise legal and/or practical questions, and is there a need to react with an adapted form of registration?

Due to the advent of megaconstellations, the Philippines understands that this concept raises legal and practical issues especially with regard to space debris in

orbit. As such, the registration of these objects should be imposed, to ensure that proper reporting is done for all the satellites comprising the megaconstellations.

4.5 Is there a possibility, in compliance with the existing international legal framework, based on the existing registration practices, of introducing a registration “on behalf” of a State of a launch service customer, based on its prior consent? Would this be an alternative tool to react to megaconstellations and other challenges in registration?

It is a possibility. But beforehand, clear rules and guidelines must be laid down on what constitutes “prior consent.”

5. International customary law in outer space

5. Are there any provisions in the five United Nations treaties on outer space that could be considered to form part of international customary law and, if yes, which ones? Could you explain the legal and/or factual elements on which your answer is based?

The following provision found in the Outer Space Treaty may be considered as forming part of international customary law:

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Following this, it must be noted that:

(1) States have been consistently exploring and using outer space for the benefit and in the interests of all countries (State practice);

(2) These acts are carried out of a sense of obligation (*opinio juris*); and

(3) These acts, so far, have been followed by all States and have not been rejected by any State.

6. Proposal for other questions

6. Please suggest additional questions that could be inserted into the set of questions above to meet the objective of the UNISPACE+50 thematic priority on the legal regime of outer space and global space governance.

European Organization for Astronomical Research in the Southern Hemisphere (ESO)

[Original: English]
[Received on 1 April 2021]

Set of questions provided by the Chair of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, taking into account the UNISPACE+50 process

1. The legal regime of outer space and global space governance

1.1 What is the main impact on the application and implementation of the five United Nations treaties on outer space of additional principles, resolutions and guidelines governing outer space activities?

The development of the five United Nations treaties on outer space most certainly cannot be achieved by revising the treaties or introducing new binding legal instruments, at least in the short term. Nonbinding tools can define and implement the international regimes developed by the five treaties. Moreover, the development of non-binding instruments also contributes to maintaining the political commitment necessary to advance international law and policymaking. However, to ensure that the treaties' obligations effectively contribute to the peaceful and sustainable exploration and use of outer space, greater transparency and international collaboration are necessary. National legislation can contribute to developing these features, but it is also essential to outline mechanisms capable of enforcing non-compliance at the national and international levels.

1.2 Are such non-legally binding instruments sufficiently complementing the legally binding treaties for the application and implementation of rights and obligations under the legal regime of outer space? Is there a need for additional actions to be taken?

1.3 What are the perspectives for the further development of the five United Nations treaties on outer space?

2. United Nations treaties on outer space and provisions related to the Moon and other celestial bodies

Concerning this item, ESO has no answer to provide.

2.1 Do the 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 (Outer Space Treaty) constitute a sufficient legal framework for the use and exploration of the Moon and other celestial bodies or are there legal gaps in the treaties (the Outer Space Treaty and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement))?

2.2 What are the benefits of being a party to the Moon Agreement?

2.3 Which principles or provisions of the Moon Agreement should be clarified or amended in order to allow for wider adherence to it by States?

3. International responsibility and liability

Concerning this item, the authors have no answer to provide.

- 3.1 Could the notion of “fault”, as featured in articles III and IV of the Convention on International Liability for Damage Caused by Space Objects (Liability Convention), be used for sanctioning non-compliance by a State with the resolutions related to space activities adopted by the General Assembly or its subsidiary bodies, such as Assembly resolution 47/68, on the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, and the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space? In other words, could non-compliance with resolutions adopted by the General Assembly or with instruments adopted by its subsidiary bodies related to space activities be considered to constitute “fault” within the meaning of articles III and IV of the Liability Convention?**
- 3.2 Could the notion of “damage”, as featured in article I of the Liability Convention, be used to cover loss resulting from a manoeuvre performed by an operational space object in order to avoid collision with a space object or space debris not complying with the Space Debris Mitigation Guidelines of the Committee?**
- 3.3 Are there specific aspects related to the implementation of international responsibility, as provided for in article VI of the Outer Space Treaty, in connection with General Assembly resolution 41/65, on the Principles Relating to Remote Sensing of the Earth from Outer Space?**
- 3.4 Is there a need for traffic rules in outer space as a prerequisite to a fault-based liability regime?**

4. Registration of space objects

- 4.1 Is there a legal basis to be found in the existing international legal framework applicable to space activities and space objects, in particular the provisions of the Outer Space Treaty and the Convention on Registration of Objects Launched into Outer Space (Registration Convention), which would allow the transfer of the registration of a space object from one State to another during its operation in orbit?**
- 4.2 How could a transfer of activities or ownership involving a space object during its operation in orbit from a company of the State of registry to a company of a foreign State be handled in compliance with the existing international legal framework applicable to space activities and space objects?**
- 4.3 What jurisdiction and control are exercised, as provided for in article VIII of the Outer Space Treaty, over a space object registered by an international intergovernmental organization in accordance with the provisions of the Registration Convention?**
- 4.4 Does the concept of megaconstellations raise legal and/or practical questions, and is there a need to react with an adapted form of registration?**

The concept of megaconstellations raises different questions concerning the safety of space activities, the sustainability of the outer space environment, the proliferation and mitigation of space debris, and the potential impacts that these can have on astronomical observations. Therefore, enhanced international registration procedures are necessary to accommodate the growing number of space objects and address the ever-increasing associated issues.

The first practical consideration regarding the registration of megaconstellations concerns the fact that these are made up of hundreds or thousands of satellites, which reasonably will not be registered individually. It is likely that for these space objects, a form of notification will be used, which provides for the registration of the batches of satellites launched from time to time. Indeed, it could be envisaged the collective registration of several satellites under a single legal entity. However, although this

represents a practical solution for registration purposes, it must not eliminate the need to record the objects launched into orbit in a timely and accurate practice. Given the critical concerns regarding sustainability, space debris, and the potential interference with other space activities, it is essential to implement reliable registration mechanisms that present precise data relating to launches, in-orbit operations, and end-of-life disposal plans of space objects.

With specific reference to the impact that megaconstellations could have on astronomy, it would be advisable that registering mechanisms were reinforced to allow astronomers to obtain factual information regarding the satellites' orbits, allowing pre-launch predictions and post-launch confirmation, to ensure better coordination between satellite operations and astronomical observations.

4.5 Is there a possibility, in compliance with the existing international legal framework, based on the existing registration practices, of introducing a registration “on behalf” of a State of a launch service customer, based on its prior consent? Would this be an alternative tool to react to megaconstellations and other challenges in registration?

5. International customary law in outer space

5. Are there any provisions in the five United Nations treaties on outer space that could be considered to form part of international customary law and, if yes, which ones? Could you explain the legal and/or factual elements on which your answer is based?

Yes, most of the Outer Space Treaty principles must be considered customary principles of international law.

To establish customary international law, two elements are required: state practice; that is, states act consistently based on principles from which a sense of legal obligation derives. And the *opinio iuris*, that is the evidence that this practice is generally recognized as legally binding.

Most of the provisions contained in the OST respond to both elements. In the first place, these principles derive from the “Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space,” Resolution of the General Assembly adopted unanimously in 1963 [RES 1962 (XVIII)], which constituted the codification of the principles of customary law “instantly” formed during the first decade of space activities. Moreover, no acts contrary to the fundamental principles in the Treaties have been exercised to date.

Specifically, these articles can be considered customary international law:

- (I) Freedom of exploration and use of outer space
- (II) Non-appropriation
- (III) Applicability of general international law
- (VI) Responsibility of States for national activities
- (VIII) Registration of space objects

6. Proposal for other questions

6. Please suggest additional questions that could be inserted into the set of questions above to meet the objective of the UNISPACE+50 thematic priority on the legal regime of outer space and global space governance.

- Is there a legal basis to be found in the existing international legal framework, in particular the provisions of the Outer Space Treaty, which would allow the definition of ground-based astronomical activities as space activities? Would this be a useful tool to preserve ground based astronomical observations from the potentially harmful impact of operations conducted in outer space?

- Is there a possibility, in compliance with the framework established by the five United Nation treaties on space law, to notify and register ground-based astronomical activities as space activities in order to create an obligation of cooperation and transparency with other stakeholders carrying out space activities?
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