

Discussion paper by the Chair of the Working Group on Status and application of the five United Nations treaties on outer space (WG TRE)

on the topic

Registration of large constellations and megaconstellations

prepared for WG TRE Tuesday 29 March 2022

Background

The Secretariat has prepared the background paper on ‘Registration of large constellations and megaconstellations’ (A/AC.105/C.2/L.322). The summary of this background paper gives some hints about the present status and some diverging practices of States. This includes as well some challenges for the application of the Registration Convention. It is the task of the Working Group to discuss those challenges and if required to offer some possible solutions. With this in mind, please allow me to make some comments in order to initiate a further discussion on the subject matter.

Topics for discussion

Registration of space objects is one of the basic principles of space law from its very beginning in order to allocate ‘jurisdiction and control’ over space objects, and if applicable over any personnel thereof, in this international area free of territorial sovereignty. It is a key factor for responsibility and transparency and most relevant for actors in space operations. This relevance is also recognized by the recent Guidelines on Long-term sustainability of outer space activities (LTS-Guidelines).

The LTS-Guideline¹ A 5.1. states: “States [...] should ensure the development and/or implementation of effective and comprehensive registration practices, as proper registration of space objects is a key factor in the safety and the long-term sustainability of space activities. Inadequate registration practices may have negative implications for ensuring the safety of space operations”.

According to the LTS-Guidelines launch service providers should conduct pre-launch conjunction assessments. “States [...] are encouraged to advise launch service providers under their jurisdiction and control to seek support, as necessary”.² Communication, information

¹ Adopted by the Committee on the Peaceful Uses of Outer Space (COPUOS) in June 2019 (A74/20, para.163 and Annex II).

² Guideline B.5 Develop practical approaches for pre-launch conjunction, para. 2.

exchange and a proactive assessment is demanded by the governmental as well as the private actor side

With the development of satellite constellations a large number of modular designed satellites form a network which produces the specific service and function as an interacting entity of objects. Instead of one operator behind one satellite, we now have an operator behind a dynamic fleet of a multitude of satellites, launched at different launch campaigns and with a regular replacement of single objects from time to time. With this development, there is a certain discrepancy between the multitude of objects forming one functional entity and the basic approach of the registration system to focus on objects placed in space, launch event by launch event.

A possible adjustment and further development of registration practice has to keep in mind as a necessary orientation the basic principles, and the more specific function and purpose of registration under space law.

The inherent logic of this approach - to focus on objects placed in space, launch event by launch event - is fundamental, since each launch event may result in a different constellation of launching States. The territory of a follow-up launch may change and the launch campaign may include space objects not forming part of a satellite constellation under construction. Therefore, in order to reflect the particularities of a satellite constellation in the registration system it seems necessary to concentrate on possible adjustments in the registration practice, without changing the system.

The way forward to a possible adjustment of the registration practice

For satellite constellations an additional information approach seems to be unavoidable in order not to lose the publicity function of the UN register under a mass of single notifications. A registration of the constellation as such, as a functional entity, would be in contradiction to all basic principles of the registration system. The way out could be a connectivity in the information system. This information can be delivered under Part D of the UNOOSA registration template (Additional voluntary information).

The first registration of a space object (satellite) of a constellation under construction could be the focal point, indicating the envisaged constellation, its operator and a clear point of contact for all questions of emergency and collision avoidance. All follow-up registrations concerning the constellation could refer to this first basic information, which might be updated, if necessary. With this additional information, the functional connectivity of the multitude of objects (and corresponding registrations) of a constellation would become transparent.

A further aspect is the sheer mass of information for the registrar, timely processing issues and the specific responsibility of the operator and of the appropriate State behind. The operator and investor will have an up-to-date full picture of all satellites of a constellation already launched, non-functional objects and decayed satellites. It would be helpful to deliver and to link this information with the registration system. This up-to-date information tool could be an 'additional information' under Part D of the UNOOSA registration template, linked

to the first registration of an object of the constellation. This living document would not overrule the formal registration under the UN system but fill the time gap between the reality in space and the unavoidable processing time.

The “Space2030” Agenda³ and implementation plan is a forward-looking strategy, prepared by UNCOPUOS and adopted by the General Assembly, addressing long-term sustainable development concerns and matters of global governance of outer space activities.⁴ Under aspects of ‘global governance of outer space activities’, the enhancement of registration practice is explicitly mentioned: “[e]nhance existing registration practices and information exchange and acknowledge the role of the Office for Outer Space Affairs in maintaining the United Nations Register of Objects Launched into Outer Space to increase transparency and improve the efficiency of registration mechanism and the timeliness and consistency of the registration of objects, including by providing technical assistance to Member States in this regard”.⁵

In conclusion

The registration system of space objects considers single objects of a specific launch event. All related legal consequences depend on this approach. The new realities of constellations challenge this approach, since constellations are based on a multitude of space objects, launched in different badges, but resulting in a functional unity with a constant renewal of disused objects. An adjustment of registration practice can be realized by additional, complementary information tools, which do not affect the registration system as such.

³ The “Space2030” Agenda: space as a driver of sustainable development (A/RES/76/3) of UNCOPUOS

⁴ see “Space 2030” Agenda Part A., I. Introduction, para.6.

⁵ see “Space 2030” Agenda Part A., III. Objectives, para. 19, 4.4.