

Space Legislation of Luxembourg

*Mahulena Hofmann**

1. Introduction

In the last five years, space activities of Luxembourg are expanding. Spacer operators were initially attracted by the announcement of the project of harvesting minerals from outer space by the Minister of Economy of Luxembourg in 2016, but this new initiative opened doors for numerous other space research and development projects as Luxembourg has created a favorable working atmosphere for space start-ups.

As generally known, Article VI of the Outer Space Treaty requires that national space activities be authorized and supervised by the appropriate State Party. However, the sole legal basis for authorizing space activities in Luxembourg was the several times amended 1991 Law on Electronic Media¹ which was drafted to accommodate Luxembourgish “satellite services” - mostly the SES² communication satellites. Over time this legal basis has become hardly suitable for regulating new forms of space activities. To accommodate the new projects, a new legislative basis was clearly needed.

2. Space Resources Legislation of Luxembourg

The first step in this direction was an elaboration and adoption of a specific legislation giving a legal framework to space resources activities. Based on an international study on the compatibility of space resources activities with international law commissioned by the Ministry of Economy of Luxembourg, the Law on the Exploration and Use of Space Resources was adopted by the Chamber of Deputies of Luxembourg and entered into force on 2 August 2017.³ The scope of the law are “missions” for the exploration and use of space resources for commercial purposes. The law – in contrast to its earlier

* SES Chair in Space, SatCom and Media Law, University of Luxembourg, mahulena.hofmann@uni.lu.

1 Amended version see Mémorial, Journal Officiel du Grand-Duché de Luxembourg, A-No 88, 1 august 2001.

2 Société Européenne des Satellites, www.ses.com.

3 Loi du 20 julliet 2017 sur l'exploration et l'utilisation des ressources de l'espace, Mémorial a, no 674 du 28 julliet 2017.

US equivalent, the 2015 US space resources legislation⁴ – does not define what “space resources” are (the US Law differentiates between asteroids and other space resources). In line with the wishes of the future space resources operators, the first Article proclaims that space resources are capable of being appropriated; at the same time, Article 2 stresses that the operations may be carried out solely in accordance with the international obligations of Luxembourg. These provisions evoked numerous discussions, specifically in the UN COPUOS. While quite a number of representatives did not consider such activities as being in conflict with applicable international law, some representatives held the opposite view as they considered appropriation of space resources as a violation of the common benefits and non-appropriation principles. However, on the 2018 Astronautical Congress which took place in Bremen, there was already a discussion to exclude smaller bodies (meaning sizes of up to around 600 kilometers which is the size of the asteroid Vesta, the biggest one in our solar system) from the non-appropriation regime making them fully appropriable.⁵

A similar approach – to create an enabling environment for space resources activities – has been taken by an international non-governmental The Hague International Space Resources Governance Working Group, which adopted in November 2019 “Building Blocks for the Development of an International Framework in Space Resources Activities”.⁶ This document recommends that a future international framework should promote and secure the orderly and safe utilization of space resources and provide legal certainty and predictability for operators. Concerning the right to extract space resources, the Building Blocks state that this future international framework should ensure that “resources rights over raw mineral and volatile materials extracted from space resources” ... “can lawfully be acquired through domestic legislation, bilateral agreements and/or multilateral agreements” (Building Block 8). One of the crucial conditions for the legality of such activities, especially of non-governmental entities, is their authorization and supervision by an appropriate State (Building Block 5).

4 US Commercial Space Launch Competitiveness Act, 114 Pub. L. 90 (25 November 2015).

5 See Ingard Marboe, Michael Friedl, What Are Space Resources? What Are Celestial Bodies? – The Need for Refined Legal Definitions in View of Recent Regulatory Efforts Concerning Space Resources, *Proceedings of the International Institute of Space Law 2018*, Eleven 2019, 749-760.

6 S. Olavo de Bittencourt Neto, Mahulena Hofmann, Tanja Masson-Zwaan and Dimitra Stefoudi (eds.), *Building Blocks for the Development of an International Legal Framework for the Governance of Space Resources Activities: A Commentary*, Eleven 2020, 165 pp.

According to the 2017 Space Resources Law of Luxembourg, no mission in the area of space resources activities can be performed without a written authorization from the Minister or Ministers in charge of space activities in Luxembourg (Article 2). In case of operation without authorization, the operator can be sanctioned either by a fine until 1,250,000 EUR or by imprisonment of up to five years (Article 18).

The conditions for such authorization are as follows. The operator – a legal person - must have its registered office in Luxembourg (Article 7). The applicant is obliged to have a robust governance scheme and to possess good reputation and all skills necessary for performing the envisaged activity. When applying for the authorization, the identity of all shareholders who hold more than 10% of the shares in the company must be revealed. To minimize the risks for the State, the applicant has to provide the Minister with a risk assessment of the mission, and an insurance policy or any other financial guarantee covering the risks (Article 10). In case that the conditions of the authorization are not met any more, the authorization can be withdrawn (Article 14). According to the law, the operators are fully responsible for any damage caused during the mission (Article 16).

To enforce the substantial rules, the Ministers in charge shall conduct a continuous supervision of missions (Article 15). The violation of the substantial provisions of the conditions of the authorization is penalized by the imprisonment of eight days plus a fine between 1,250 and 500,000 EUR. Additionally, a court can declare a discontinuation of the operation and a penalty of up to 1 million Euros per day.

3. General Space Law

The Space Resources legislation reacted to the imminent need of space operators to have a transparent document that defines their obligations and rights. However, as already mentioned, space resources missions are only one part of space activities of Luxembourg. There are not only the SES satellites, which are authorized according to the 1991 Law on Electronic Media, but numerous other research and commercial projects conducted under the supervision of Luxembourg.

Therefore, the Ministry of State, the Media and Communications Department prepared a draft of general space law which addresses space activities of Luxembourg in general. This Draft covers all space activities of Luxembourg, with the exception of space resources activities, as these will remain regulated and authorized according to the special 2017 Law on Space Resources. The document was submitted to the Chamber of Deputies as document No 7317 in June 2018 and is still in the legislative process.

The scope of the Draft are - in contrast to the special focus of the Space Resources Law - all space activities of Luxembourg that may result in the

international responsibility (e.g. through space activities carried out by citizens of Luxembourg or legal persons registered in Luxembourg) and eventual international liability (e.g. through a damage caused by space object registered in Luxembourg to entities in other countries) of Luxembourg. From its scope are exempted only space resources activities which should remain authorized on the basis of the 2017 Law, with the exception of authorization for launching and registration of their space objects. All space activities have to be conducted in accordance with international obligations of Luxembourg. Additionally, the Draft is a basis for the establishment of a future public registry of authorized space activities and space objects of Luxembourg.

According to the Draft, before starting space activities, each operator has to be in the possession of a valid authorization which is not transferrable to third parties; a space activity without an authorization is penalized by prison between eight days and five years and a fine between 5,000-1,250,000 EUR. The authorization is conditioned by the administrative seat of the operator in Luxembourg, his/her honorability, and professional capabilities. As in case of space resources activities, an insurance or financial means to cover the risks are required. The decision on the authorization shall be issued in six months from the application by the Minister. To cover the costs of the supervision of the authorized activity, the operator is obliged to pay an annual fee the amount of which should be determined by a secondary legislation.

The authorized activity shall be supervised by the Minister, who may appoint experts to perform this function, having access to information and locations connected with the space activity. To enforce the substantive rules, the Draft pre-envisages that in case of violation of the condition of the authorization, or of obtaining the authorization on the basis of false information, the authorization can be withdrawn. In such situations, the Minister can take all measures to avoid any risks for the security, the environment, or for damage covered by the international liability of Luxembourg. These measures may also involve the transfer of the control of the activity to third persons, including the possibility of deorbiting the space object. The sanctions for violation of the law shall range from a fine to imprisonment of up to five years and a fine between 5,000 and 1,250,000 EUR.

The Draft has been thoroughly analyzed by the Conseil d'État, an independent institution that advises the Parliament in the legislative procedure. Its detailed Opinion was published in February 2019.⁷ In sum, this document recommended to harmonize the Draft Law with the 2017 Law on Space Resources, in order to create a coherent legal framework for all space activities of Luxembourg.

7 Avis du Conseil d'État, No. 7317/02, 15 février 2019.

4. Conclusion

The 2017 Law on Space Resources contributed to the transparency of authorization procedure needed by the operators of space resources missions. The Draft general legislation submitted in June 2018 to the Chamber of Deputies was a further step in the modernization of the procedures for the authorization of all other space activities in Luxembourg, which should in principle substitute the system of concessions introduced by the 1991 Law on Electronic Media. After being approved – reflecting the Opinion of the Conseil d'État - the general space law shall be a further contribution to the processes initiated by the UN Resolution 68/74 on National Legislation Relevant to Peaceful Exploration and Use of Outer Space of 2013 which recommended to adopt national legislation enabling transparent authorization and supervision of national non-governmental space activities.

It can be stated that the legislator clearly intended, on the one hand, to provide operators with a transparent and welcoming legal framework, and on the other hand, to provide the Government with effective means to prevent risks and to sanction the violations of its conditions. This can be seen also on means chosen for the enforcement of the substantive rules: both legal documents formulate the obligation of the respective Minister to supervise the space activity and connect the violation of the condition of its authorization with its withdrawal. Substantial violations of the legislation are sanctioned by a fine or imprisonment of up to five years.

Compared to other recent European space legislations, e.g. the 2011 Austrian Space Law,⁸ the Outer Space Act of Denmark,⁹ or the Act on Space Activities of Finland of 2018,¹⁰ the Luxembourg Law on Space Resources does not encompass any provisions requiring the applicants to adopt measures preventing the generation of space debris and adverse impact on the environment. A comparable provision was part of the Draft General space law; however, in the course of harmonization with the Space Resources Law it may be lost in the future. In such case, the environmental obligation can be derived only from the references (in both documents) to the international legal obligations of Luxembourg applicable to space activities, which lead to Article IX of the Outer Space Treaty and its “due regard” principle.

Second, the legislation of Luxembourg makes the operator “fully responsible” for any damage caused during the mission, and does not introduce any cap. To compare, the Austrian law offers a 60 million EUR cap for damages to persons and property; similarly, the space law of Finland

8 Austrian Federal Law on the Authorization of Space Activities and the Establishment of a National Space Registry, adopted by the National Council on 6 December 2011, Translation. Amended by the 2015 Regulation of the Federal Minister of Transport, BGBl. II No. 36/2015.

9 Outer Space Act, Act no. 409 of 11 May 2016, Translation.

10 Act on Space Activities, 63/201, Translation.

capped the amount of the recourse by 60 million EUR (Section 7); and according to Danish law, the State "may" make claims against the operator (Article 12).

Finally, concerning the insurance of space activities, both Luxembourg laws (the one in force and the Draft) require an obligatory insurance or financial means to cover the risks. To compare, the Austrian law allows for releasing the operator from the insurance obligation (§ 4 of the Law and § 3 of the 2015 Regulation); the space law of Denmark gives the Minister a discretion to adopt regulations on the scope and implementation of the duty to insure (Article 13(4)); and on the basis of the Finish law, the insurance can be waived by the Minister under certain conditions (Section 8).

As one of the reasons for the unambiguity of the provisions in the Luxembourg space legislation and the lack of rules allowing for further discretion of national authorities can be seen the position of the Conseil d'État of Luxembourg who - in its opinions preceding the adoption of the legislation by the Parliament - labelled several provisions of the Drafts, which did not give a clear position to their potential users, as sources of legal insecurity and opposed formally to their inclusion in the texts.¹¹ Despite of the fact that the positions of the Conseil d' État are not binding and are recommendatory in character, they are highly respected by the legislator and will be reflected in the final drafts.¹²

The lawyers supporting future space operators will be thoroughly studying the differences among the European space laws and their impact on the situation of their customers. This is fully in spirit of Article 189 of the Treaty on the Functioning of the European Union, which excludes harmonization of space laws and regulations of its Member States. These differences are reflecting the diversity of European legal orders and traditions, offering the potential applicant a variety of legal conditions and environments embedded in the framework of the UN space treaties.

11 See eg. p.17 of the Avis.

12 P. 18 of the Avis: The original version of Article 10 conferred the right to specify the "financial base" intended to cover the risks relating to the mission on the secondary, Grand-Ducal legislation. The Opinion stated that any limitation of the right to commerce, protected by the Constitution, must be adopted by a law. Consequently, this provision (Article 10 (3)) has been deleted from the Draft.

P. 22 of the Avis: The original version of Article 14 of the Draft vested on the Minister the right to impose additional conditions on an already authorized mission; the Opinion declared these additional conditions a limitation of the right to commerce protected by the Constitution and opposed formally to their inclusion in the Space Resources Law; this provision has been deleted, too.