

Luxembourg Completing its Space Legislation

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*Mahulena Hofmann**

1. Introduction

On 1 January 2021, the general Space Law of Luxembourg¹ entered into force. It complemented the 2017 Law on Space Resources² by an authorization regime applicable to the remaining space activities under Luxembourg's jurisdiction. However, the original law serving for authorizing space telecommunication, the 1991 Law on Electronic Media³, has not been abolished and may be relevant for some space projects. Additionally, the new laws provide that the authorizations obtained on their basis do “not exempt the operator from the need to obtain other approvals or authorizations” required for their activities (Article 17 of the 2017 Law, Article 5 para 2 of the 2020 Law).

It can be affirmed that Luxembourg authorities have now at their disposal a full-coverage legal framework capable to attract foreign operators and manage national space activities. The operator is confronted with a complex network of binding rules to be found in several legal texts; this situation will unavoidably require a good legal analysis determining which document is applicable to which activity or its parts thereof.⁴ To avoid imposing too heavy administrative and legal burdens to the operators, the authorities envisage to concentrate the authorization and licensing procedures in the hands of one ministry – the Ministry of Economy. According to the parliamentary debates, the operator will be able to submit the whole file to the Luxembourg Space Agency and the procedures will take place under the

* SES Chair in Space, SatCom and Media Law, University of Luxembourg; Charles University Prague.

1 Loi portant sur les activités spatiales (Law of 15 December 2020 on Space Activities), Mém. A1086 de 2021.

2 Loi du 20 juillet 2017 sur l'exploration et utilisation des ressources de l'espace (Mém. A674 du 28 juillet 2017).

3 Loi du 27 juillet 1991 sur les médias électroniques, modifié par Loi du 2 avril (Law of 27 July on Electronic Media, as amended), Mém. A 88 du 1^{er} août 2001, p. 1788.

4 The author wishes to express her thanks to Mr *Blazej Gladysz-Lehmann* from Arendt & Medernach SA for his valuable inputs.

supervision of the ministry.⁵ This approach would assist the applicants to cope with several legal procedures and is not unusual in other countries.

2. Material scope of the laws

2.1. The 1991 Law on Electronic Media

The first instrument of authorizing space activities in Luxembourg was the 1991 Law on Electronic Media.⁶ It covered only a narrow, albeit at that time the most important part of Luxembourg's space operations, mostly satellite broadcasting and telecommunication. According to Article 20 of this law, "nobody can establish and operate a Luxemburgish satellite system, without previously having obtained a concession, granted by government...". As Luxemburgish satellite system, the law understands "any system of one or more satellites using the satellite frequencies (sic!) of the Grand Duchy of Luxembourg... whether those frequencies belong to the broadcasting or any other service" (Article 2 para 27). The legal form of the authorization was and remains a "concession" accompanied by the "book of obligations"; both documents are not public. The limitation of the scope of the 1991 Law to the use of frequencies allocated to Luxembourg by the ITU was one of the reasons for adopting more general legal acts capable to harbor a broader scope of activities. However, as already mentioned, this law has been abolished neither by the 2017, nor the 2020 space laws. The consequence is that the operators using Luxembourg frequencies remain obliged to obtain a concession according to the 1991 Law, in addition to their duty to apply for an authorization based on the 2020 general space law or the 2017 law in case of space resources missions.

2.2. The 2017 Space Resources Law

The 2017 law is focused on "mission(s) for exploration and use of space resources for commercial purposes". These terms are not defined in the body of the law. In contrast to the 2015 US Law,⁷ neither the Draft of 2016, nor the final version of the 2017 Law of Luxembourg include any definition of "space resources". Only the Explanatory Statement to the Draft states that space resources are "nowadays commonly defined as abiotic resources that can be found in situ in outer space and that can be extracted"; this definition includes for example mineral resources and water, but not the "orbital

5 S. i.e. P.V. ECOPC 14, p. 7/8.

6 S. fn. 1.

7 Commercial Space Launch Competitiveness Act, Public Law 114-90, November 25, 2015, 129 Stat. 720.

positions or frequency spectrum”.⁸ Furthermore, this document adds that in the contrast to the “resources”, the Draft does not address “asteroids, comets, or celestial bodies themselves”.⁹

The lack of definition of space resources was commented by the Chamber of Commerce of Luxembourg in its statement of January 2017;¹⁰ the Chamber observed that a definition would help future operators to better orientate in the legal setup. In a similar direction argued the Council of State of Luxembourg in April 2017:¹¹ After having quoted the US 2015 Law¹² which included the definitions of “asteroid resource”¹³ and “space resource”,¹⁴ the Council recommended that some or similar definitions are included in the Law of Luxembourg.¹⁵ The Commission of Economy of the Parliament reacted on the Opinion of the Council of State in May 2017 by a new paragraph of the Coordinated Text of the Project¹⁶ which excluded satellite communication from the scope of the Law. However, no definition of space resources was added. This solution entered into the final text of the Law.¹⁷ The notion “exploration and use” of space resources in Article 2 of the 2017 Law follows the terminology of Article I of the Outer Space Treaty. However, according to the 2016 Commentary on Articles,¹⁸ it does not cover legal regimes of launching activities and the launched objects needed for the exploration and the use of the resources: Launching activities must be subject to a separate authorization, and also the registration of space objects should be subject of distinct rules. For the sake of transparency, the Chamber of Commerce recommended to include a provision exempting the launching phase from the space resources authorization in the body of the Law.¹⁹ These discussions contributed to the formulation of the more general Article 17 of

8 See also the results of the Hague International Space Resources Governance Working Group, O. de Bittencourt Neto, M. Hofmann, T. Masson-Zwaan, D. Stefoudi, Building Blocks for the Development of an International Framework for the Governance of Space Resources Activities: A Commentary, Eleven 2020, 157 pp.

9 No 7093, p. 7.

10 No 7093¹.

11 Avis du Conseil d'État, 7 avril 2017, No 7093².

12 Fn. 7.

13 Space resource found on or within a single asteroid.

14 Abiotic resource in situ in outer space. The term “space resource” includes water and minerals.

15 According to the Federal Law No 12 of 2019 of the United Arab Emirates on the Regulation of the Space Sector, space resources are any non-living resources present in outer space, including minerals and water.

16 No 7093³.

17 Projet de loi sur l'exploration et l'utilisation des ressources de l'espace, Rapport de la commission de l'économie, 6 July 2017, No 7073.

18 Commentaire des articles, in: Projet de loi sur l'exportation et l'utilisation des ressources de l'espace, No 7093, p. 8.

19 No 7093².

the Space Resources Law which confirms that the authorization for a mission does not dispense operators from the need to obtain other approvals or authorizations.

The 2017 law can be applied only if a space resources mission is carried out for “commercial purposes”. This means that other than commercial missions are not subject matter of this law; the 2016 Commentary to the Articles mentions i.e., “scientific missions”, and activities for “purely private purposes” (Article 3). In view of the later developments, all non-commercial activities, even if they are of a purely space resources’ character, must be authorized according to the 2020 general Space Law which does not require any condition of commerciality for its application. Therefore, its article 1 excluding “missions involving the exploration and use of space resources” from its scope of application must be read with some caution. It does not exclude all space resources missions from its scope, but only those which are governed by the Law of 20 July 2017.

Neither the term “mission” is defined in the 2017 Law, and consequently nor its duration. The original provision of the Space Resources Law stating that the authorization shall be granted for a “specific period” and being renewable (former Article 5), analogous to Article 20 of the 1991 Law on Electronic Media, was deleted from the text: Surprisingly, the State Council saw in the missing determination of its duration (“specific period”) a violation of the freedom of commerce guaranteed by Article 11 para 6 of the Constitution of Luxembourg.²⁰ Even more surprisingly, the solution should consist in defining the duration of the mission by the applicant himself/herself and assessed by the Minister during the authorization procedure.²¹

2.3. The 2020 General Space Law

After having exempted commercial missions involving exploration and use of space resources from its scope (Article 1), the 2020 general Space Law covers any activity “consisting in launching or attempting to launch one or more space objects into outer space or controlling one or more space objects or in using them during a stay in outer space, including the return to Earth, as well as any activity taking place in outer space for which the Grand Duchy of Luxembourg is likely to be held internationally liable” (Article 2.1). This last condition has been intensely debated during the legislative process; other elements of this description have started to be discussed now. One of these terms is the content of the notion of “attempting to launch” which has its precedent in the 1972 Liability Convention (Article 1).²² In the view of the

²⁰ Luxembourg’s Constitution of 1868 with amendments through 2009, *Constitute*, 26 August 2021, <https://constituteproject.org>, lastly visited 12 September 2021.

²¹ *Supra* note 11, p. 13.

²² Convention on the Liability for Damage Caused by Space Objects, UNTS, vol. 961, No. 13810.

Cologne Commentary, according to the historical documents, the “attempt” is considered to be a “failed” launching.²³

As no specific rule has been added concerning the obligation to complete an orbit, there is no reason why to exclude suborbital flights reaching outer space from the material scope of the 2020 law. It will be interesting to observe the practice of authorization in relation to the diversification of the space activities which are usually composed of numerous components. It seems e.g, likely that the operator of a satellite network will not be obliged to obtain an authorization for launching and operation of each single satellite but will obtain one authorization covering a whole network. However, only practice will show whether it will be possible to extend the scope of the authorization during an authorized space activity, or whether a new application for each added activity will be necessary.

As already mentioned, obtaining an authorization does not exempt the operator from the need to apply for other approvals or authorizations (Article 5). Pursuant to this provision, the operators of satellite networks using the Luxembourg frequencies will continue to need a concession based on the 1991 Electronic Media Law. Furthermore, any commercial aspect of the space activity will lead to the obligation to apply for a business license issued by the Ministry for Small and Medium-sized Enterprises²⁴ as confirmed in the parliamentary debates preceding the adoption of the Law.²⁵

3. State governed activities in the 2017 and the 2020 laws

It remains open whether space projects – both space resources missions and other space activities – when carried out by public authorities of Luxembourg fall under the scope of both laws. A negative answer seems to be the most likely solution. The 2017 Space Resources Law speaks clearly about the mission for “commercial purposes”; it enumerates the legal forms of the applicant leading to a successful application for the authorization (Article 4): a public company limited by shares, a corporate partnership limited by shares, a private limited liability company of Luxembourg law or a European Company having its registered office in Luxembourg. None of these forms corresponds to a public authority.

The approach of the 2020 Law is more general as it requires an authorization for any “activity taking place in outer space for which the Grand Duchy is likely to be held internationally liable” which *prima facie* would not exclude

23 S. Hobe et al, Cologne Commentary on Space Law, Vol II, Carl Heymanns Verlag 2013, p. 106.

24 Loi du 2 septembre 2011 réglementant l'accès aux professions d'artisan, de commerçant, d'industriel ainsi qu'à certaines professions libérales, Mém. A 198, 22 September 2011.

25 P.v. ECOPC 14.

public authorities. Moreover, the operator is defined in a neutral way as “any person who on his own behalf carries out or undertakes any space activity, alone or jointly with others” (Article 1 para 5). However, the conditions for obtaining the authorization – such as a registered office, central administration, identification of the shareholder or partners – are formulated in a way excluding governmental entities from its scope.

4. Sustainability

There is neither any specific provision on the sustainability of space resources missions, nor any provision on space debris mitigation in the 2017 Space Resources Law. According to its article 10 (1), the application for authorization must be accompanied by a “risk assessment” of the mission which might but does not need to be understood as involving any environmental impact assessment. Furthermore, the authorized operators are fully liable for any damage caused at the occasion of the mission, including at the occasion of preparatory works (Article 16) which can be interpreted as including the liability for environmental damage.

Concerning the 2020 general Space Law, the 2018 Draft envisaged a provision that obliged the operators to take measures limiting negative effects to the environment and the risks connected with space debris. This was formulated as an obligation of means. This text was criticized by the Opinion of the State Council as vague. Together with the argument that there is no similar provision in the 2017 Space Resources Law, this obligation was deleted from the final Draft.

Instead of a primary environmental rule, the concern was shifted to a secondary rule copied from the 2017 Space Resources Law on the full liability of the operators for any damage caused at the occasion of the mission (Article 4). As the definition of the term ‘damage’ in the 2020 Law (Article 2) includes also explicitly “environmental damage”, the Law makes the operators liable for the environmental harm “directly caused” by their space objects.²⁶ In the parliamentary discussion, the Minister expressed a view that by using the term “fully liable”, the rule is close to an obligation of result (duty to achieve a given result). While this might be true, it is deplorable that all provisions explicitly dealing with measures preventing space debris have been deleted from the body of the law.

²⁶ 2020 Law, Article 2 (3): “damage”: “any harm to persons, property, public health or the environment directly caused by a space object within the scope of a space activity, excluding the consequences of use of the signal emitted by that object for users”.

5. International law

The 2017 Space Resources Law states in its Article 2 (3) that the authorized operator may only carry out the space resources mission in accordance with international obligations of Luxembourg.

The approach of the general Space Law was broader: Article 3 of the 2018 Draft²⁷ required that space activities authorized by Luxembourg are carried out with respect to international law including the UN Charter, respect international peace and security, contribute to international cooperation and respect the Outer Space Treaty and other international treaties binding upon Luxembourg. This provision regulating the relation of the space activities to international law experienced substantive changes. Based on the formal opposition of the State Council, the rule concerning the respect to international law was shortened off the requirement that space activities must respect peace and security, contribute to international cooperation, and respect the Outer Space Treaty. The State Council stated that the legislator could not impose conditions exclusively reserved for a State on private operators, such as preservation of peace and of international cooperation. The original text was replaced by the formulation taken from the 2017 Space Resources Law. This change was described as “wise” in the parliamentary discussions.

Article 15 of the 2020 Law established a National Register of Space Objects for which Luxembourg assumes a registration obligation under Article VIII of the Outer Space Treaty and Article II of the 1975 Registration Convention. The content of this public Register can be consulted on the website of the Luxembourg Space Agency.²⁸ The inclusion of this provision in the 2020 law was related to the adoption of a separate law on the approval of the Registration Convention by the Parliament in December 2020.²⁹ The submission of accession documents by the Government to the depositary followed on 27 January 2021.³⁰ By this step, Luxembourg completed the ratification of four of the five UN space treaties. Because of the existence and content of the 2017 Space Resources Law, the ratification of the fifth UN space treaty, the 1979 Moon Agreement, by Luxembourg seems, at least in the imminent future, to be highly unlikely.

6. Conclusion

The adoption of the 2020 general Space Law of Luxembourg resulted in the completion of the process of intense work on domestic legislation capable to serve as instrument of management of growing space activities carried out

27 No 7317, 18 July 2018.

28 <https://space-agency.public.lu>, last visit on 12 September 2021.

29 No 7270, Mém. A, No 1087, 28 December 2020.

30 C.N.46.2021.

under the jurisdiction of Luxembourg. It goes without saying that the existence of authorization procedures regulated by binding rules contributes substantially to the requirements of transparency and the rule of law and can serve as an important incentive for space operators.

Once applied, some elements of this legislation have to be interpreted by the administrative or judicial institutions or further regulated by under-statutory rules. Such measures may flow from the necessity to coordinate and harmonise the implementation of at least four laws requiring in parallel specific authorizations of space activities. It is to be hoped that the authorities will deal with this situation in a pragmatic way and, as announced in the parliamentary debates, show their readiness to offer an “one shop” address for the whole authorizations’ package.