

Scoping National Space Law: The True Meaning of ‘National Activities in Outer Space’ of Article VI of the Outer Space Treaty

*Frans G. von der Dunk**

Abstract

Article VI of the Outer Space Treaty, requiring “authorization and continuing supervision” of “national activities in outer space” including those of “non-governmental entities”, has always been viewed as the primary international obligation driving the establishment of national space legislation for the purpose of addressing private sector space activities. As the Article itself did not provide any further guidance on precisely what categories of ‘national activities by non-governmental entities’ should thus be subjected to national space law and in particular to a national licensing regime, in academia generally three different interpretations soon came to be put forward on how to interpret the key notion of ‘national’ in this context as scoping such national regimes.

Looking back at 50 years of national space legislation addressing private sector space activities, however, we now have the possibility to look not only at the writings of learned experts, at best a subsidiary source of public international law, but at actual State practice-*cum-opinio iuris* on the matter. The present paper, on the basis of a survey of more than two dozen existing national space laws, will therefore be able to considerably narrow the appropriate interpretation of ‘national activities in outer space’, so as to diminish the uncertainty as regards what categories of private space activities States may be held responsible for, thus both narrowing the permissible discretion of individual States in scoping their national space law regimes and increasing the coherence and transparency of space law at the international level.

* University of Nebraska-Lincoln, College of Law, Space, Cyber and Telecommunications Law Program.

1. Introduction

Fifty years ago, the first national act unequivocally addressing potential private space activities in an effort to properly interpret and implement the main space treaties was drafted.¹ As at that time only the Outer Space Treaty² had been drafted and entered into force, this Norwegian act was very succinct. Soon, however, the Liability Convention³ and the Registration Convention⁴ would be added to the core parts of international space law requiring interpretation and domestic implementation with respect to private space activities.

While the Outer Space Treaty mainly focused on State activities in outer space,⁵ one clause in particular foresaw the involvement of private entities in space activities: Article VI of the Outer Space famously held States internationally responsible for “national activities in outer space” including those “carried on (...) by non-governmental entities”, and provided that such private space activities “require authorization and continuing supervision by the appropriate State Party to the Treaty”.⁶

While ‘authorization and continuing supervision’ could also take other forms, the establishment of national space legislation is usually considered the most comprehensive and preferable method of ensuring the direct application of international space law as relevant to the private sector.⁷

1 This was the Act on launching objects from Norwegian territory into outer space (hereafter Norwegian Act on Launching), No. 38, 13 June 1969.

2 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereafter Outer Space Treaty), London/Moscow/Washington, done 27 January 1967, entered into force 10 October 1967.

3 Convention on International Liability for Damage Caused by Space Objects (hereafter Liability Convention), London/Moscow/Washington, done 29 March 1972, entered into force 1 September 1972.

4 Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), New York, done 14 January 1975, entered into force 15 September 1976.

5 See e.g. P. Jankowitsch, ‘The background and history of space law’, in F.G. von der Dunk & F. Tronchetti (Eds.), *Handbook of Space Law*, Cheltenham/Northampton, Edward Elgar Publishers, 2015, pp. 1-28; F.G. von der Dunk, ‘International space law’, in F.G. von der Dunk & F. Tronchetti (Eds.), *Handbook of Space Law*, Cheltenham/Northampton, Edward Elgar Publishers, 2015, esp. pp. 43-9.

6 See further e.g. I. Marboe, ‘National space law’, in F.G. von der Dunk & F. Tronchetti (Eds.), *Handbook of Space Law*, Cheltenham/Northampton, Edward Elgar Publishers, 2015, pp. 130-3; M. Gerhard, ‘Article VI’, in S. Hobe, B. Schmidt-Tedd & K.U. Schrogl (Eds.), *Cologne Commentary on Space Law, Vol. I*, Cologne, Carl Heymanns Verlag, 2009, pp. 103-25.

7 Cf. Marboe, National space law, pp. 133-9; also F.G. von der Dunk, *Private Enterprise and Public Interest in the European ‘Spacescape’*, Leiden, International Institute of Air and Space Law, 1998, esp. pp. 17-22.

The main question then remains: *what* categories of private space activities is a State responsible for and would thus be required to authorize and continuously supervise, preferably by way of national space legislation? The answer, of course, lies in the concept of 'national activities in outer space', and in particular in the word 'national' therein.⁸

2. The meaning of 'national activities' in outer space

Given that the Outer Space Treaty itself did not provide any further clues to what precisely '*national* activities in outer space' was supposed to refer to, in academic circles soon three different theories were propounded on how to properly interpret that clause.⁹ Following increasing awareness of the importance of national legislation in the interpretation and implementation of international space law and the need to arrive at a more uniform approach to those, since roughly two decades fundamental efforts were undertaken to that end.¹⁰ These remained, however, of an essentially academic character still. And while such academic efforts do matter, as "the teachings of the most highly qualified publicists of the various nations" could qualify as "means for the determination of rules of [international] law", that qualification would in any event be "subsidiary" to more authoritative sources of international law, wherever these would be available.¹¹

Even more importantly, as to treaty law including of course the Outer Space Treaty, while "any subsequent practice in the application of the treaty" concerned is referenced as part of the general rule of treaty interpretation, academic writings are not mentioned at all in this context.¹²

So ultimately, the efforts by States to try and bring some uniformity into the growing body of national space law interpreting and implementing

8 Note that strictly speaking it is the 'appropriate State' which has to undertake such authorization and continuing supervision; however, logically this would be one of the States also being responsible pursuant to Art. VI, Outer Space Treaty, whereas other States co-responsible for the same activities would at least be able to, and likely see the benefits of, also apply(ing) their own authorization and supervision to them; see Von der Dunk, *Private Enterprise*, pp. 20-1.

9 See succinctly Von der Dunk, *International space law*, pp. 53-4.

10 See e.g. M. Gerhard & K.U. Schrogl, 'Report of the 'Project 2001' Working Group on National Space Legislation', in K.H. Böckstiegel (Ed.), *Project 2001 - Legal Framework for the Commercial Use of Outer Space*, Cologne/Berlin/Bonn/Munich, Carl Heymanns Verlag, 2002, pp. 552-8; and Resolution No. 6/2012 adopting the 'Sofia Guidelines for a Model Law on National Space Legislation', adopted at the ILA Conference in Sofia, Bulgaria, September 2012, www.ila-hq.org/en/committees/index.cfm/cid/29.

11 Cf. Art. 38(1)(d), Statute of the International Court of Justice, San Francisco, done 26 June 1945, entered into force 24 October 1945.

12 Art. 31(3)(b), Vienna Convention on the Law of Treaties, Vienna, done 23 May 1969, entered into force 27 January 1980.

international space law would be decisive. These efforts received their international culmination so far in the adoption of a UNGA Resolution in 2013, ‘Recommendations on national legislation relevant to the peaceful exploration and use of outer space’.¹³ While loosely building upon the ideas of ‘building blocks’ and a ‘model law’ referenced in the key academic projects, it provided *inter alia*:

The State, taking into account its obligations as a launching State and as a State responsible for national activities in outer space under the United Nations treaties on outer space, should ascertain national jurisdiction over space activities *carried out from territory under its jurisdiction and/or control*; likewise, it should issue authorizations for and ensure supervision over space activities *carried out elsewhere by its citizens and/or legal persons established, registered or seated in territory under its jurisdiction and/or control*, provided, however, that if another State is exercising jurisdiction with respect to such activities, the State should consider forbearing from duplicative requirements and avoid unnecessary burdens.¹⁴

UN Resolutions could under circumstances be seen as providing evidence of customary international law¹⁵, but ultimately any such determination of the correct interpretation (or at least the range of correct interpretations) would of course arise from the State practice of relevant States parties to the Outer Space Treaty, if accompanied by *opinio iuris* amounting to an interpretation of the relevant treaty provision binding under customary international law.¹⁶

Such State practice-*cum-opinio iuris* with regard to the phrase ‘national activities in outer space’ of Article VI of the Outer Space Treaty would most clearly arise from the scope of national space laws implementing the obligations of ‘authorization and continuing supervision’. States, after all, would obviously be intent on arranging for authorization and supervision in particular of those private activities they might be held responsible for on the international level under that same Article VI.¹⁷

13 UNGA Resolution on ‘Recommendations on national legislation relevant to the peaceful exploration and use of outer space’, UNGA Res. 68/74 of 11 December 2013.

14 No. 2, UNGA Resolution 68/74; see also the Report of the Working Group on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space, UN Doc. A/AC.105/C.2/101, 3 April 2012; emphasis added.

15 *Cf.* Art. 38(1)(b), Statute of the International Court of Justice. UN Resolutions could also reflect “the general principles of law recognized by civilized nations”; *cf.* Art. 38(1)(c).

16 See in general on customary international law, State practice and *opinio iuris*: B.D. Lepard (Ed.), *Reexamining Customary International Law*, New York, Cambridge University Press, 2017.

17 Note that, though not formally required to do so by the Outer Space Treaty (or the Liability Convention), States would be very much inclined to also authorize and supervise private activities potentially giving rise to their international liability

3. The available State practice-cum-opinio juris: national space laws authorizing and supervising private space activities

The notion of 'national space law'¹⁸ also encompasses space law which as such merely addresses or establishes institutions, notably national space agencies, whose exclusive or main aim is to become involved in space activities and/or space applications. Establishment of any institution *as such*, however, is obviously not a 'space activity' or a 'space application' yet may, equally obviously, have a major impact on space activities or space applications in a legal context. Such laws, however, will not be included in the present analysis as they do not principally address the authorization and continuing supervision of private activities in outer space.

That still leaves us with more than two dozen countries which do have such a national regime in place.

Following Norway as referenced before¹⁹ taking the lead in 1969, in 1970 the United States officially kicked off its domestic efforts to regulate private space activities²⁰. It was in turn followed by a host of countries essentially addressing *all* space activities *ratione materiae* by way of a single overarching national space law: in 1982 Sweden²¹, in 1986 the United Kingdom²², in 1993 South Africa²³ and the Russian Federation²⁴, in 1996 Ukraine²⁵, in 2005

pursuant to Article VII of the Outer Space Treaty and/or the Liability Convention, but this issue is beyond the scope of the present analysis. It does already at this point, however, clarify why some academics have tried to argue that 'national activities' are basically those for which a State can be held *liable*, as referenced above.

18 Cf. F.G. von der Dunk, 'Preface', in F.G. von der Dunk & F. Tronchetti (Eds.), *Handbook of Space Law*, Cheltenham/Northampton, Edward Elgar Publishers, 2015, p. xxvi, with reference to international and national 'space law' taken together. See further at p. 13 for the definition of 'space activity' in this context. On national space laws in general, see Marboe, *National space law*, pp. 127-204; F.G. von der Dunk (Ed.), *National Space Legislation in Europe*, Leiden/Boston, Martinus Nijhoff Publishers, 2011; Böckstiegel, 'Project 2001'; Von der Dunk, *Private Enterprise*; R.S. Jakhu (Ed.), *National Regulation of Space Activities*, Dordrecht/Heidelberg/London/New York, Springer, 2010); C. Brünner & E. Walter (Eds.), *Nationales Weltraumrecht / National Space Law*, Vienna/Cologne/Graz, Böhlau Verlag, 2008.

19 See *supra*, § 1, (text at) n. 1.

20 This was done by a 1970 FCC report which confirmed that the 1934 Communications Act was applicable also to *satellite* communications. Other US laws targeting specific space sectors or more generally the private sector as whole followed, usually as later amended repeatedly: the 1984 Commercial Space Launch Act; the 1984 Land Remote Sensing Act; the 1998 Commercial Space Act and the 2015 Commercial Space Launch Competitiveness Act.

21 Cf. Act on Space Activities, 1982: 963, 18 November 1982.

22 Cf. Outer Space Act (hereafter UK Outer Space Act), 18 July 1986, 1986 Chapter 38; later complemented by the Space Industry Act (hereafter UK Space Industry Act), 15 March 2018, 2018 Chapter 5.

23 Cf. Space Affairs Act (hereafter South African Space Affairs Act), 6 September 1993, assented to on 23 June 1993, No. 84 of 1993.

Belgium²⁶, in 2007 the Netherlands²⁷, in 2008 France²⁸, in 2010 Nigeria²⁹, in 2011 Austria³⁰, in 2012 Kazakhstan³¹, in 2013 Indonesia³², in 2016 Denmark³³, in 2018 Finland³⁴ and in 2019 Portugal³⁵. Finally, there is the unique case of Hong Kong³⁶, as of 1997 strictly speaking applying a *regional* space law as opposed to a *national* one, but still essentially regulating private space activities.

The above national regimes, all *ratione materiae* comprehensive in scope, by that token comply with the general exhortation of UNGA Resolution 68/74 to

include, as appropriate, the launch of objects into and their return from outer space, the operation of a launch or re-entry site and the operation and control of space objects in orbit; other issues for consideration may include the design and manufacture of spacecraft, the application of space science and technology, and exploration activities and research.³⁷

Conversely, however, a number of States has (at least so far) limited the scope of their national space law *ratione materiae* to specific space sectors.

Most importantly, in five cases States have national legislation in place essentially addressing private involvement in launch activities only. This

24 Cf. Law of the Russian Federation on Space Activities (hereafter Russian Law on Space Activities), No. 5663-1, 20 August 1993, effective 6 October 1993.

25 Cf. Law of Ukraine on Space Activities (hereafter Ukrainian Law on Space Activities), No. 502/96-VR, 15 November 1996.

26 Cf. Law on the Activities of Launching, Flight Operations or Guidance of Space Objects, of 17 September 2005 (hereafter Belgian Space Law).

27 Cf. Law Incorporating Rules Concerning Space Activities and the Establishment of a Registry of Space Objects (hereafter Dutch Space Law), 24 January 2007.

28 Cf. Law on Space Operations (hereafter French Law on Space Operations); *Loi n° 2008-518 du 3 juin 2008*.

29 Cf. National Space Research and Development Agency Act, adopted 27 August 2010, No. 9 of 2010.

30 Cf. Austrian Federal Law on the Authorisation of Space Activities and the Establishment of a National Space Registry, as adopted by Parliament on 6 December 2011.

31 Cf. Law of the Republic of Kazakhstan on Space Activities, of 6 January 2012, 2012 No. 528-IV.

32 Cf. Law of the Republic of Indonesia on Space Activities, Nr. 21, of 6 August 2013.

33 Cf. Outer Space Act, passed by Parliament with the third treatment, 3 May 2016.

34 Cf. Act on space activities, 63/2018, of 23 January 2018.

35 Cf. Decree-Law No. 16/2019, of 22 January 2019.

36 Cf. Outer Space Ordinance, An Ordinance to confer licensing and other powers on the Chief Executive to secure compliance with the international obligations of the People's Republic of China with respect to the launching and operation of space objects and the carrying on of other activities in outer space, 13 June 1997, as amended 1999, Chapter 523.

37 No. 1, UNGA Resolution 68/74.

concerns following Norway in 1969 as referenced above, in 1998 Australia³⁸, in 2001 Brazil³⁹, in 2005 South Korea⁴⁰ and in 2017 New Zealand⁴¹. In two cases – as of 2005 Canada⁴² and as of 2007 Germany⁴³ – national law on private sector space activities so far only addresses private involvement in satellite remote sensing activities. In one case – as of 2017 Luxembourg⁴⁴ – current national law exclusively focuses on prospective interests by private parties in space resource exploitation.

Finally, of potential importance in this context would be a handful of States which have at least a national act in place addressing space object registration. In view of the linkage on the one hand of registration to jurisdiction (and control)⁴⁵ and on the other hand of jurisdiction to international responsibility⁴⁶ these acts might also shed some light on the proper interpretation of the scope of the latter, giving rise to the particular obligations of authorization and continuing supervision. This concerns, as far as can be presently ascertained⁴⁷, in chronological order as of for many decades Germany⁴⁸, as of 1995 Spain⁴⁹ and Argentina⁵⁰, and as of 2001 China⁵¹.

38 Cf. An act about space activities, and for related purposes, No. 123 of 1998, assented to 21 December 1998.

39 Cf. Administrative Edict No. 27, 20 June 2001 (hereafter Brazilian Administrative Edict).

40 Cf. Space Development Promotion Act, Law No. 7538, of 31 May 2005, entered into force 1 December 2005.

41 Cf. Outer Space and High-altitude Activities Act 2017, No. 29 of 2017, assented to 10 July 2017, entered into force 21 December 2017.

42 Cf. Remote Sensing Space Systems Act, assented to 25 November 2005.

43 Cf. Act Protecting Against the Endangerment of German Security Through the Proliferation of High Resolution Aerial Imagery of the Earth, 23 November 2007, effective 1 December 2007.

44 Cf. Law on the exploration and utilization of space resources (hereafter Luxembourgish Space Resources Law); of 20 July 2017.

45 Cf. Art. VIII, Outer Space Treaty; Art. II, Registration Convention.

46 Cf. *supra*, text quoted at n. 14.

47 See Schematic overview of national regulator frameworks for space activities, Committee on the Peaceful Uses of Outer Space; A/AC.105/C.2/2014/CRP.5, of 17 March 2014.

48 Actually, this is achieved as per the Civil Aviation Act (*Luftverkehrsgesetz*), originally adopted in 1922, as revised most recently 11 December 2008.

49 Cf. Royal Decree No. 278/1995 establishing in the Kingdom of Spain the Registry foreseen in the Convention adopted by the United Nations General Assembly on 2nd November 1974, 24 February 1995, Prime Minister's Chancellery.

50 Cf. Establishment of the National Registry of Objects Launched into Outer Space (hereafter Argentine Decree on Space Object Registration), National Decree No. 125/95, 19 July 1995.

51 Cf. Order No. 6 of the Commission of Science, Technology, and Industry for National Defense and the Ministry of Foreign Affairs of the People's Republic of

4. Scoping the authorization regime

As all the aforementioned States took care through their domestic law to provide for authorization (and continuous supervision)⁵² of private activities, they could not – and did not – satisfy themselves by merely reiterating that the relevant obligations for private operators to receive an authorization would apply in case of ‘national activities’; inevitably they provided for much more precise delineation of the scope of the authorization obligation *ratione personae*.

Following an analysis of the national space law of all 28 States at issue here (Germany being represented twice and Hong Kong for simplicity’s sake qualifying as a State different from China), indeed very helpful conclusions could be drawn on what States consider the proper approach to interpreting and implementing the authorization required of national activities in outer space.

As for the three academic approaches initially being debated, the first approach turns out to have remained a largely academic and theoretical one. At least as far as the set of comprehensive national space laws under discussion is concerned, as of today no State applies its authorization regime to activities of nationals *only*. The United Kingdom was more or less alone in at least originally doing so, but fundamentally changed its approach in this respect recently at least as far as launch activities were concerned.⁵³ Of the States having national space legislation with more limited scope, the Luxembourgish Law on Space Resources limited itself to allowing only operators falling within its personal jurisdiction to engage in relevant activities⁵⁴ – and, probably not accidentally, so does the chapter of the US Commercial Space Launch Competitiveness Act that deals with space resource exploitation⁵⁵.

The second approach, of targeting in particular those private space activities that already give rise to a State’s liability, is equally followed by a very

China, Measures for the Administration of Registration of Objects Launched into Outer Space, of 8 February 2001.

52 Note that the term ‘authorization’ should be understood in a general sense; many countries and their laws and regulations refer not to ‘authorizations’ but to ‘licenses’, ‘permissions’, ‘permits’, ‘approvals’ and/or other terms, respectively their translation into the national language, but they would all boil down to the same: the consent of a relevant sovereign State given to private sector entities to conduct certain space activities subject to certain conditions. For the sake of this analysis, ‘supervision’ is conceived as merely a specific part or extension of the concept of ‘authorization’, since any national space law providing details on supervision of non-governmental entities’ space activities almost by definition applies those to activities (to be) authorized by the same regime. See also *e.g.* Marboe, National space law, pp. 134-5.

53 Compare Secs. 1 & 2, UK Outer Space Act, with Sec. 3, UK Space Industry Act.

54 *Cf.* Arts. 4, 2, Luxembourgish Space Resources Law.

55 *Cf.* Secs. 51302, 51303, 51 U.S.C.

limited set of national space laws only. This applies to two national space laws of a comprehensive nature – those of Belgium and the Netherlands, not entirely limiting themselves moreover to territorial or quasi-territorial application only⁵⁶ – as well as, for logical reasons in view of the partial focus of the liability regime on the territory on which launch activities are conducted, some of the countries with space laws focusing on launch activities – notably, Norway (albeit with some extension of scope along the same lines as Belgium and the Netherlands) and Brazil⁵⁷.

Consequently, the third approach, of applying the licensing regime to those non-governmental activities already subject to a State's jurisdiction anyway, has by far the largest score of adherent countries. Except for Belgium and the Netherlands, all countries with a comprehensive licensing scheme now in principle apply both personal and territorial jurisdiction, even as a number of lower-level differences – for instance, in adding quasi-territorial jurisdiction (with Russia and Ukraine more or less explicitly applying that to registered space objects in addition to ships and aircraft⁵⁸) or excluding certain types of activities – can still be seen. Except for the United States, South Africa and France, they do so across the board, regardless of what particular category of space activities is concerned.⁵⁹ Most of the national regimes more limited in scope *rationae materiae* also follow this approach. Only as for the regimes addressing registration only, little can usually be said about how the relevant States interpret the key clause on 'national activities in outer space' of Article VI; the exception being Argentina which specifically calls for the exercise of jurisdiction and control over nationally registered space objects as part of its obligations under that Article⁶⁰.

56 Cf. Art. 2(1), Belgian Space Law, resp. Sec. 2(1), Dutch Space Law.

57 Cf. Sec. 1(a) & (b), Norwegian Act on Launching, resp. Art. 2, Regulation On Procedures And On Definition Of Necessary Requirements For The Request, Evaluation, Issuance, Follow-Up And Supervision Of Licenses For Carrying Out Launching Space Activities On Brazilian Territory included in the Brazilian Administrative Edict.

58 Cf., resp., Arts. 17(2) & 9(2), Russian Law on Space Activities; and Arts. 13 & 10, Ukrainian Law on Space Activities.

59 As for the United States, the application of the Communications Act's licensing obligation remains confined to activities conducted from US territory only (cf. Sec. 301), the application of the licensing obligation for space resource exploitation remains confined to US nationals only (cf. Secs. 51302, 51303, 51 U.S.C.) whereas all other acts as relevant apply at least to activities conducted by US nationals *and* from US territory; as for South Africa, for non-launch space activities the licensing obligation remains in principle limited to South African nationals (cf. Sec. 11(1)(d), South African Space Affairs Act; note however the 'escape clause' of Sec. 11(1)(e)); as for France, essentially the same approach applies as for South Africa (cf. Art. 2(3), French Law on Space Operations).

60 Cf. Art. 3, Argentine Decree on Space Object Registration.

In general, there can be no doubt any longer that the proper interpretation of ‘national activities in outer space’, as evidenced by State practice and attendant *opinio iuris* expressed through national space legislation, is that, in line with UNGA Resolution 68/74, it encompasses all private sector space activities conducted from within the territorial, quasi-territorial (including at least ships, aircraft and mobile platforms, but likely also registered space objects themselves) and personal jurisdiction of the State at issue.

The few exceptions must be viewed as presenting rather idiosyncratic approaches, in most cases apparently not following the ‘standard’ approach merely because of a perceived lack of absence of necessity to be as comprehensive as required by that approach.

The United Kingdom moved away from its application of the first approach to the third one as soon as space activities conducted from their territory became a feasible – and welcome – activity, even if both the feasibility and consequently the application remained confined to launch activities. Luxembourg, the only State left still following that first approach, would counter any interest of foreign companies in conducting space activities from Luxembourgish territory with requirements to create a local Luxembourg entity, as happened with the US space resource exploitation projects currently taking shape.

Finally, even Belgium and the Netherlands, the two adherents to the second approach having comprehensive national space laws, have also imported elements of the personal jurisdiction-approach into their regime, ready to apply them in case the limitation to territory-only would result in undesirable results.⁶¹ This effectively also applies to the launch-only national acts, where – in view of the definition of the ‘launching State’ giving rise to international third-party liability as including ‘territory’ – a focus on territory is to be expected, whereas none of the five countries has a private sector likely to start space activities outside of national territory.

5. Concluding remarks

The key role of national space legislation in ensuring the proper integration of private space activities in the overarching body of public international space law, most importantly the fundamental UN treaties drafted in the 1960s and 1970s, is by now incontrovertible. In the framework of the United Nations Committee on the Peaceful Uses of Outer Space, which operates on the basis of almost absolute respect for State sovereignty and the resulting discretion of States to implement or not implement international obligations as they see fit, it is by now axiomatic that, unless States have no private space activities at all taking place under their *aegis* and/or prohibited them

61 As for Belgium, *cf.* Art. 2(2), Belgian Space Law; as for the Netherlands, *cf.* Sec. 2(2), Dutch Space Law.

fundamentally, they should ensure such a proper integration by way of national space laws. The States which do not have such national space laws yet are gently urged to establish them are given 'model laws' and 'model building blocks' to work with and can always access a growing depository of existing national space law to see how other States have tackled the issue.

At the same time, the States which do have national space legislation addressing private participation in space activities in place, have been confronted with the fact that the major treaties requiring such domestic interpretation and implementation do not really provide much details in terms of a model. Being drafted in the days when not even in the United States, that ultimate champion of private enterprise, private and commercial space activities were seriously foreseen, key notions such as 'international responsibility for national activities in outer space', 'international liability as a launching State' and 'jurisdictional competences and responsibilities as a State of registry' remained essentially undefined.

The present analysis addresses the national space laws established so far in particular from this vantage point: to what extent has the State practice and *opinio iuris* which these laws embody, been consistent enough to arrive at further definitions of an international customary nature of these concepts? Any such consistency and customary international law value would certainly make it easier for States not yet in the possession of a national space law to interpret and implement their international obligations in the context of private sector space activities – but would at the same time give them less discretion to interpret and implement them, giving rise to a more coherent global environment for private space activities.

The result of this analysis is that the clause of Article VI of the Outer Space Treaty on 'national activities in outer space' has almost uniformly been interpreted as including activities conducted by nationals, from national territory or from national quasi-territory such as ships and aircraft; exceptionally, activities conducted with nationally registered space objects are also explicitly mentioned.

In other words: the third approach, of linking a State's responsibility for space activities and the obligation to authorize and supervise them to those private sector activities over which it exercises jurisdiction should be seen as reflecting an almost uniform State practice-*cum-opinio iuris* on the proper interpretation and implementation of '*national activities in outer space*'. A closer look at the few exceptions and the rationales behind them would further confirm this conclusion.