Towards 'Flags of Convenience' in Space?

*Frans G. von der Dunk**

1 'Flags of Convenience' and 'Genuine Link' in the Law of the (High) Seas

The term 'flags of convenience' by now has some history behind it, if it has not indeed gained some notoriety. This means that it is important to realise where it comes from and how it was developed in a legal context in order to separate the proper legal parameters, of (potential) relevance for space law and the present discussions, from the more colloquial aspects of the notion.

The background of the concept lies in the law of the sea. Since days of old, ships hoisted the flags of the nations they (or at least their owners, if private) belonged to. Ships without *any* national flag as a matter of fact soon came to be considered as being without nationality, an anomaly without any state either willing or entitled to exercise jurisdiction over them often effectively equating them to pirate ships – and ships hoisting the flags of *two* different nations were in turn equated to ships without nationality.[1]

These general customs over time consolidated, and in the end were codified into treaty law: in the 1958 Geneva Convention on the High Seas it was declared that "[s]hips have the nationality of the State whose flag they are entitled to fly"[2]. As part of its sovereignty, moreover, every state had the right to have its ships fly its flags.[3]

In sum, the registration of a ship was concurrent to providing it with the flag and nationality of the state of registration, such registration was a sovereign right of a state and as a consequence that state was entitled to apply its jurisdiction

1 Cf. already Art. 6, Convention on the High Seas, Geneva, done 29 April 1958, entered into force 30 September 1962; 450 UNTS 82; TIAS 5200; 13 UST 2312; UKTS 1963 No. 5; Cmnd. 584; ATS 1963 No. 12; and Art. 92, United Nations Convention on the Law of the Sea, Montego Bay, done 10 December 1982, entered into force 16 November 1994; 1833 UNTS 3 & 1835 UNTS 261; UKTS 1999 No. 81; Cmnd. 8941; ATS 1994 No. 31; 21 ILM 1261 (1982); S. Treaty Doc. No. 103-39.

2 Art. 5(1), Convention on the High Seas.

3 See Art. 4, 5(1), Convention on the High Seas.

on a quasi-territorial basis to that ship.[4] '*Quasi*-territorial', since a ship was not true territory legally speaking, and for example when present in the territorial waters or ports of a state different from the state of registration, the true territorial jurisdiction of the latter state would usually override the quasi-territorial jurisdiction of the registration state.[5] The latter jurisdiction was applied for a range of purposes, including the implementation of domestic criminal law, but also with respect to safety requirements, including crew licenses and craft certification, and employment conditions.

The 1958 Convention on the High Seas at the same time represented a first effort to deal with the increasing phenomenon of shipping companies registering their ships not with their home state properly speaking, but with states where the registration costs, safety requirements and/or employment conditions were favourable to those shipping companies – meaning generally they remained at a low level. In other words, such companies went 'license shopping', looking for the lowest-level obligations and associated costs. Some states, consequently, though in general terms not major economic powers even specifically from a maritime perspective, turned out to be amongst the largest shipping nations in the world due to such registration practices.

These were the so-called 'flags of convenience', 'cheap flags' where the usually concurrent presence of lower standards in terms of cheap and less-trained labour and the lack of high-level safety standards for ships and operations became an increasing ground for concern amongst the other shipping and coastal states.

Whilst the sovereign right of individual states to determine the conditions under which ships could be included in its national register had to be recognised also by the 1958 Convention,[6] the latter did represent an effort to address the issue by requiring national registration of ships to take place only in case these had a 'genuine link' with the state concerned. Thus, Article 5(1) expressly commanded that "[t]here must exist a genuine link between the State and the ship; in particular, the State must effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag".

More in particular,

> "1. Every State shall take such measures for ships under its flag as are necessary to ensure safety at sea with regard, inter alia, to:
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> (a) The use of signals, the maintenance of communications and the prevention of collisions;

4 Cf. Art. 6(1), Convention on the High Seas; Art. 92(1), United Nations Convention on the Law of the Sea.

5 Cf. e.g. Art. 1(1), Convention on the Territorial Sea and the Contiguous Zone, Geneva, done 29 April 1958, entered into force 10 September 1964; 516 UNTS 205; TIAS 5639; UKTS 1965 No. 3; Cmd. 584; ATS 1963 No. 12, *juncto* Artt. 14-20, setting out the regime for 'innocent passage'.

6 Thus, Art. 5(1), Convention on the High Seas, provides that "[e]ach State shall fix the conditions for the grant of its nationality to ships, for the registration of ships in its territory, and for the right to fly its flag".

(b) The manning of ships and labour conditions for crews taking into account the applicable international labour instruments;
(c) The construction, equipment and seaworthiness of ships.
2. In taking such measures each State is required to conform to generally accepted international standards and to take any steps which may be necessary to ensure their observance."[7]

Thus, in the absence of political feasibility to derogate by way of an international treaty from the sovereign right of a state to determine registration conditions, by listing some key parameters on the international level and requiring states to abide by them it was hoped that the genuine *link* would translate into genuine *concern* for the well-being of the ship, the crew and the cargo, as well as for others possibly harmed by their operations, and hence would translate into the effective exercise of jurisdiction and control by way of serious and high-level requirements being imposed upon them and enforced as appropriate. As time progressed the use of 'flags of convenience' and the number of incidents and accidents as a consequence of lower safety-standards, including ever more prominently also environmental disasters, grew considerably, so the relevant international *legal* obligations tried to counteract this by raising the bar for national registration. When the 1982 UN Convention on the Law of the Sea, developing an overarching regime for all international maritime matters and superseding *inter alia* the 1958 Convention on the High Seas, incorporated its clause on the 'genuine link',[8] it added quite some detail to it:

"1. Every State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag.
2. In particular every State shall:
(a) maintain a register of ships containing the names and particulars of ships flying its flag, except those which are excluded from generally accepted international regulations on account of their small size; and
(b) assume jurisdiction under its internal law over each ship flying its flag and its master, officers and crew in respect of administrative, technical and social matters concerning the ship.
3. Every State shall take such measures for ships flying its flag as are necessary to ensure safety at sea with regard, *inter alia*, to:
(a) the construction, equipment and seaworthiness of ships;
(b) the manning of ships, labour conditions and the training of crews, taking into account the applicable international instruments;
(c) the use of signals, the maintenance of communications and the prevention of collisions.
4. Such measures shall include those necessary to ensure:
(a) that each ship, before registration and thereafter at appropriate intervals, is surveyed by a qualified surveyor of ships, and has on board such charts,

7 Art. 10, Convention on the High Seas.
8 See Art. 91(1), United Nations Convention on the Law of the Sea.

nautical publications and navigational equipment and instruments as are appropriate for the safe navigation of the ship;

(b) that each ship is in the charge of a master and officers who possess appropriate qualifications, in particular in seamanship, navigation, communications and marine engineering, and that the crew is appropriate in qualification and numbers for the type, size, machinery and equipment of the ship;

(c) that the master, officers and, to the extent appropriate, the crew are fully conversant with and required to observe the applicable international regulations concerning the safety of life at sea, the prevention of collisions, the prevention, reduction and control of marine pollution, and the maintenance of communications by radio.

5. In taking the measures called for in paragraphs 3 and 4 each State is required to conform to generally accepted international regulations, procedures and practices and to take any steps which may be necessary to secure their observance."[9]

In addition, on specific issues such as double-hull tankers other international treaties have been established,[10] although those treaties are by that very token only applicable to *their* respective constituencies of states parties, which excludes most of the states predominantly targeted as 'flags of convenience'.
In short: from the still considerable if not indeed growing number of accidents occurring specifically with ships registered with 'flags of convenience' it can only be concluded that in the international maritime area the problem persists until today. That, however, in itself should not be equated to concluding that legal action would altogether be useless; it simply cannot be measured to what extent these legal requirements attached to a 'genuine link' nationality may have *avoided* accidents which would have otherwise happened.

2 Moving from the High Seas to Outer Space – The Key Parameters

When trying to evaluate the extent to which, following the above overview of the law of the sea, 'flags of convenience' do actually or might possibly constitute a problematic issue for outer space and outer space activities, in order to see how we could learn from these earlier experiences, a summary assessment of the current situation in space law, in particular focusing on such safety- and environmental security-related issues, is due.
The first point of note here is that, whilst space law also knows the concept of registration of space vehicles and even has a international treaty providing for

9 Art. 94, United Nations Convention on the Law of the Sea.

10 Such as the International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 (MARPOL Convention as Modified), London, done 17 February 1978, entered into force 2 October 1983; ATS 1988, No. 29.

the baseline details in the form of the Registration Convention[11], that treaty does not provide for much by way of either 'genuine link' requirements or specific requirements addressing potential safety concerns:

> "1. Each State of registry shall furnish to the Secretary-General of the United Nations, as soon as practicable, the following information concerning each space object carried on its registry:
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> (a) Name of launching State or States;
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> (b) An appropriate designator of the space object or its registration number;
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> (c) Date and territory or location of launch;
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> (d) Basic orbital parameters, including:
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> (i) Nodal period;
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> (ii) Inclination;
>
> (iii) Apogee;
>
> (iv) Perigee;
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> (e) General function of the space object.
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> 2. Each State of registry may, from time to time, provide the Secretary-General of the United Nations with additional information concerning a space object carried on its registry.
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> 3. Each State of registry shall notify the Secretary-General of the United Nations, to the greatest extent feasible and as soon as practicable, of space objects concerning which it has previously transmitted information, and which have been but no longer are in Earth orbit."[12]

Also, within the *corpus juris spatialis internationalis* there is no reference whatsoever to certification of spacecraft, requirements with respect to crew or the general safety of operations, other elements prominently involved in implementing a 'genuine link' requirement through substantial legal and factual control. The clause coming closest to dealing with such issues in international space law is the very general one offered by Article IX of the Outer Space Treaty:

> "States (…) shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States (…) and conduct exploration of them so as to avoid their harmful contamination (…) and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States (…) it

11 Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), New York, done 14 January 1975, entered into force 15 September 1976; 1023 UNTS 15; TIAS 8480; 28 UST 695; UKTS 1978 No. 70; Cmnd. 6256; ATS 1986 No. 5; 14 ILM 43 (1975).

12 Art. IV, Registration Convention.

> shall undertake appropriate international consultations before proceeding with any such activity or experiment (…)[and a state]which has reason to believe that an activity or experiment planned by another State (…) would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, may request consultation concerning the activity or experiment".[13]

On the domestic level, only two national space laws have provided for a generic requirement regarding certification of relevant technology and hardware, with details provided by further implementing regulations: those of *Russia*[14] and the *Ukraine*[15] respectively.

Essentially therefore, as a consequence of the above concerns with the safety of space activities have within the legal realm been channelled largely through the handling of liability issues. It is by assessing how third-party liability has been handled in space law that we can determine the extent to which 'flags of convenience' may present a real threat in the space arena. As a consequence, such liability issues will also provide the fundamental elements of analysing the licensing of private operators from a perspective of addressing 'flags of convenience' in the space law context, as a key area where states might be tempted to offer 'cheap flags'.

These issues of liability, further to the generic clause of Article VII of the Outer Space Treaty, were handled at the international level essentially by the Liability Convention[16]. The Liability Convention most importantly holds states liable for damage also if actually caused by private activities through the fundamental involvement of such states in the launch of the space object causing the damage

13 See Art. IX, 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; 610 UNTS 205; TIAS 6347; 18 UST 2410; UKTS 1968 No. 10; Cmnd. 3198; ATS 1967 No. 24; 6 ILM 386 (1967).

14 Cf. Art. 10, Law of the Russian Federation on Space Activities (hereafter Russian Law on Space Activities), No. 5663-1, 20 August 1993, effective 6 October 1993; *National Space Legislation of the World*, Vol. I (2001), at 101.

15 Cf. Art. 12, Law of the Ukraine on Space Activities (hereafter Ukrainian Law on Space Activities), No. 502/96-VR, 15 November 1996; *National Space Legislation of the World*, Vol. I (2001), at 36.

16 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; 961 UNTS 187; TIAS 7762; 24 UST 2389; UKTS 1974 No. 16; Cmnd. 5068; ATS 1975 No. 5; 10 ILM 965 (1971).

in question, as per the concept of the "launching State"[17]. Such liability is, furthermore, in principle without limit.[18]

As the principled upshot of this state liability – which is in general contrast to private liability of ship owners for liability for damage caused by their ships, where only for exceptional circumstances treaty law has been developed providing for second-tier liability of states[19] – the states who are involved in the launch or procurement of the launch of a space object with key involvement of private operators or have their territory or facilities used for such a launch[20] should arrange for a (legal) system of national derogation *vis-à-vis* such private operators, if they are not to be caught between an international obligation to pay damage and the inability to recoup any part of such payment from a private operator actually responsible for the accident at issue.

Once they would choose to do so, they are actually left with various policy choices – and this is notably where, at least in theory, the issues of 'flags of convenience' and 'license shopping' come into the picture. The first major policy choice regards the level of mandatory reimbursement properly speaking: should it be unlimited, to mirror the unlimited liability under the Liability Convention which the launching state(s) would face (in which case there would be a huge disincentive for private parties to become involved in space activities at all) or should there be a cap on such reimbursement (in which case the state concerned would *de facto* act as partial insurer, namely for any amount of damage above the cap for which it would be held internationally liable)?

The follow-on major policy choice would then focus on insurance for such derogation of international third-party liability claims of the private operators concerned. Should such insurance be statutorily obliged – and if so, if the reimbursement would be capped, to the same limit, or if reimbursement would not be capped, to a limit nevertheless? Or should it be left to the operator concerned, which meant allowing it 'to bet the company' – and allowing for a risk that the state would not be reimbursed in applicable cases as much as it might have expected?

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17 Art. I(c), Liability Convention, provides for a fourfold alternative definition of the launching state, as comprising "(i) A State which launches or procures the launching of a space object; (ii) A State from whose territory or facility a space object is launched"; see further Artt. II-V.

18 Art. XII, Liability Convention, provides: "The compensation which the launching State shall be liable to pay for damage under this Convention shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred."

19 Cf. e.g. the International Convention on Civil Liability for Oil Pollution Damage, Brussels, done 29 November 1969, entered into force 19 June 1975; 973 UNTS 3; UKTS 1975 No. 106; Cmnd. 4403; ATS 1984 No. 3; 9 ILM 45 (1970); 64 AJIL 481 (1970).

20 Cf. again the fourfold definition of the "launching State", *supra*, n. 17.

Finally, a more overarching third policy choice will be briefly addressed here – that of the question to whom, or more precisely to which categories of space activities in particular in terms of who undertakes them, the licensing regime developed in elaboration (amongst others) of the policies once chosen further to the above will be made to apply, either automatically or optionally.
The main question then, with a view to determining the seriousness of the issue of 'flags of convenience' in outer space, of course is to what extent divergences have actually arisen as between various states potentially qualifying as 'launching states' of space objects for international third-party liability purposes. The brief analysis hereunder of necessity focuses only on those states which have enunciated more or less dedicated legal laws and acts on private operators involved in space activities, not on general licensing and/or tort liability regimes which might occasionally have a bearing on such issues as well (in particular if the state at issue has no proper national space law in place). Yet, already this brief analysis highlights that indeed the various states concerned have addressed these issues and policy choices in various manners.

3 The Reimbursement Obligation – Cap or no Cap?

Thus, on the first policy issue, the *United States* – the largest constituency for private space operators – since 1984 has capped the reimbursement obligation for licensees through a complicated system whereby every license will refer to such a cap as being either the Maximum Probable Loss (MPL) calculated through a complex analysis, *or* the highest rate which can be insured against reasonable rates at the time of licensing, *or* US$ 500,000,000 – whichever is the lowest of the three.[21] In actual fact, the highest cap quoted in a license in this respect so far appears to have been US$ 261,000,000 for a Delta 4-M or M+ launch.[22]
Australia has adopted a similar approach based on an MPL-calculation, with a 'maximum maximum' of reimbursement set at A$ 750,000,000 – roughly US$ 800,000,000 at today's rates.[23] For *France*, the recent Law on Space Operations

21 See Sec. 70112, Commercial Space Transportation – Commercial Space Launch Activities (hereafter US Commercial Space Launch Act), 49 U.S.C. 70101 (1994).

22 See Study of the Liability Risk-Sharing Regime in the United States for Commercial Space Transportation, of 1 August 2006, conducted for the US DoT, Aerospace Report No. ATR-2006(5266)-1, at p. 1, fn. 4.

23 See Secc. 47, 48, An act about space activities, and for related purposes (hereafter Australian Space Activities Act), No. 123 of 1998, assented to 21 December 1998; *National Space Legislation of the World*, Vol. I (2001), at 197, as amended by the Space Activities Amendment Act, An Act to amend the Space Activities Act 1998, No. 100 of 2002, assented to 10 November 2002; <www.austlii.edu.au/au/legis/cth/num_act/saaa2002247/>.

as further elaborated by a Finance Act of 2008 calls for reimbursement obligations of between € 50,000,000 and € 70,000,000 per launch to be included[24], with Arianespace – the only entity so far licensed with a view to liability – actually having been made liable at a rate of € 60,000,000 per launch, some US$ 80,000,000 as of today[25]. *Austria*, in its even more recent Outer Space Act, applies a cap on reimbursement of – at minimum – the same € 60,000,000.[26] Finally, also *South Korea* applies a maximum to the reimbursement obligation, of 200,000,000,000 Won – roughly US$ 175,000,000 as of the time of writing.[27] Other states by contrast have just referred to the possibility, under the applicable domestic statute, to limit the reimbursement obligation, at various levels of specificity and without any indication as to actual amounts to be quoted in particular licenses. The *Swedish* national act simply speaks of reimbursement of the state of whatever international claim it would have to settle "unless special reasons tell against this".[28] For the *United Kingdom*, "[a] person to whom this Act applies shall indemnify Her Majesty's government in the United Kingdom against any claims brought against the government in respect of damage or loss arising out of activities carried on by him

24 See Artt. 13-17, Law on Space Operations (*Loi relative aux opérations spatiales*; hereafter French Law on Space Operations); *Loi n° 2008-518 du 3 juin 2008*; unofficial English version 34 *Journal of Space Law* (2008), 453, *juncto* Art. 119, Finance Act (*Loi de finances*), *Loi n° 2008-1443 du 30 décembre 2008 de finances rectificative pour 2008*.

25 This was a 'translation' from the pre-euro period, when the maximum reimbursement was set at FF 400,000,000 – the rough equivalent of € 60,000,000 at the time of introduction of the euro. See Artt. 3(9), 4(1), Declaration by Certain European Governments Relating to the Ariane Launcher Production Phase, done 14 January 1980, entered into force 15 October 1981; 6 *Annals of Air and Space Law* (1981), 723.

26 See §§ 4(4), 11, Austrian Federal Law on the Authorisation of Space Activities and the Establishment of a National Space Registry (hereafter Austrian Outer Space Act), as adopted by Parliament on 6 December 2011.

27 See Art. 14, Space Development Promotion Act (hereafter Korean Space Development Promotion Act), promulgated 31 May 2005, entered into force 1 December 2005; unofficial translation 33 *Journal of Space Law* (2007), 175; *juncto* Art. 5, Space Liability Act, Law No. 8852, of 21 December 2007; UNOOSA National Space Law Database, <www.oosa.unvienna.org/oosaddb/showDocument.do?documentUid=402&level2=none&node=ROK1970&level1=countries&cmd=add>.

28 Sec. 6, Act on Space Activities (hereafter Swedish Act on Space Activities), 1982: 963, 18 November 1982; *National Space Legislation of the World*, Vol. I (2001), at 398; *Space Law – Basic Legal Documents*, E.II.1; 36 *Zeitschrift für Luft- und Weltraumrecht* (1987), 11.

to which this Act applies";[29] *Hong Kong's* Ordinance contains an almost identical clause.[30]

The *Russian* Law on Space Activities more or less implicitly leaves the possibility open to limit liability payments from the licensees to the state,[31] as do the *Ukrainian* Law[32] and the *Brazilian* Administrative Edict[33], all however without any clear-cut reference to the underlying international liability obligations. In the case of *South Africa*, by contrast, it is expressly provided that a licence issued "may (…) contain conditions relating to (…) liability of the licensee resulting from international conventions, treaties and agreements entered into or ratified by the Government of the Republic", including such which "may determine, limit or exclude the liability of the licensee concerned regarding damages that may be caused".[34] Similarly, in *Belgium*[35] and the *Netherlands*[36] the options to limit such liability reimbursement are clearly left open.

Finally, the *Norwegian* Act on launching objects from Norwegian territory into outer space[37] does not speak to the issue at all – but that is primarily because it

29 Sec. 10(1), Outer Space Act (hereafter UK Outer Space Act), 18 July 1986, 1986 Chapter 38; *National Space Legislation of the World*, Vol. I (2001), at 293; *Space Law – Basic Legal Documents*, E.I; 36 *Zeitschrift für Luft- und Weltraumrecht* (1987), 12.

30 See Sec. 12(1), 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 (hereafter Hong Kong Outer Space Ordinance), 13 June 1997, as amended 1999, Chapter 523; *National Space Legislation of the World*, Vol. II (2002), at 403; 51 *Zeitschrift für Luft- und Weltraumrecht* (2002), 50.

31 Cf. Art. 30, Russian Law on Space Activities.

32 Cf. Art. 25, Ukrainian Law on Space Activities.

33 Cf. Art. 9, Administrative Edict No. 27 (hereafter Brazilian Administrative Edict), 20 June 2001; *National Space Legislation of the World*, Vol. II (2002), at 377.

34 Sec. 14(1), resp. (2), Space Affairs Act (hereafter South African Space Affairs Act), 6 September 1993, assented to on 23 June 1993, No. 84 of 1993; Statutes of the Republic of South Africa – Trade and Industry, Issue No. 27, 21-44; *National Space Legislation of the World*, Vol. I (2001), at 413.

35 See Art. 15, Law on the Activities of Launching, Flight Operations or Guidance of Space Objects (hereafter Belgian Space Law), 17 September 2005, adopted 28 June 2005; *Nationales Weltraumrecht / National Space Law* (2008), at 183.

36 See Sec. 12, Law Incorporating Rules Concerning Space Activities and the Establishment of a Registry of Space Objects (hereafter Dutch Space Law), 24 January 2007; 80 *Staatsblad* (2007), at 1; *Nationales Weltraumrecht / National Space Law* (2008), at 201.

37 Act on launching objects from Norwegian territory into outer space (hereafter Norwegian Act on Launching), No. 38, 13 June 1969; *National Space Legislation of the World*, Vol. I (2001), at 286.

was enunciated as early as 1969, well before the Liability Convention was being finalised whereas the 1967 Outer Space Treaty by way of Article VII only posited the general principle of liability without providing for any further details.

4 Insurance Against Third-Party Liability and Reimbursement: Obligatory or Not?

Also on the second policy issue, of insurance, the statutory approaches vary. The national acts of *Norway* and *Sweden* do not even refer to 'insurance', whereby it must be deemed to be at the discretion of the licensee to take out such an insurance – although for example the Swedish act states that "[a] licence may be restricted in the way deemed appropriate with regard to the circumstances", which could of course result in an insurance obligation in the license itself.[38] Also *South Africa*[39] and *Belgium*[40] do not statutorily require the licensee to take out insurance (let alone refer to a cap in this respect) – although of course on a license-by-license basis that could be the result, as moreover justified by some more general principles made to apply to licenses and licensees.
In the *United Kingdom*, though insurance strictly speaking is not obligatory under the statute[41] (with the *Hong Kong* Ordinance containing an identical clause[42]), at the policy level this has been standard practice so as to effectively constitute an obligation, with moreover a standard cap on third-party liability insurance being applied of (currently) some € 60,000,000, some US$ 80,000,000 at today's rates.[43]

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38 Sec. 3, Swedish Act on Space Activities.

39 Cf. Sec. 11(2), South African Space Affairs Act, referring *inter alia* to "(b) the national interests of the Republic; and (c) the international obligations and responsibilities of the Republic".

40 Cf. Art. 5(2), Belgian Space Law, providing that "[t]he Minister (…) *may* in particular (…) create an obligation for insurance to be taken out in favour of third parties to cover the damage that may result from the activities authorised by him", emphasis added.

41 Cf. Sec. 5(2)(f), UK Outer Space Act, providing: "A licence *may* in particular contain conditions (…) requiring the licensee to insure himself against liability incurred in respect of damage or loss suffered by third parties, in the United Kingdom or elsewhere, as a result of the activities authorised by the licence"; emphasis added.

42 See Sec. 6(2)(f), Hong Kong Outer Space Ordinance.

43 Cf. the UK Space Agency's statement on the issue, at <www.bis.gov.uk/ukspaceagency/what-we-do/space-and-the-growth-agenda/uk-capabilities-for-overseas-markets/the-outer-space-act-1986>. Earlier policy statements referred to an amount of £ 100,000,000, almost double the present applicable amount; see the 2010 Revised Guidance For Applicants Outer Space Act 1986, p. 2, at <www.bis.gov.uk/assets/bispartners/ukspaceagency/docs/osa/guiforapp2010.pdf>.

In the cases of *Russia*[44], the *Ukraine*[45] and *Brazil*[46], the national space laws, all presuming unlimited reimbursement at least as a starting point for any particular license 'negotiations', provide for an obligation to insure against such third-party liability derogation in respect of which they, however, then proceed on the basis of an opposite presumption: that the insurance *will* be capped[47].
In all those cases, the respective governments apparently are willing to run the risk that their unlimited right of recourse *vis-à-vis* the licensee might in cases of catastrophic disasters falling within the scope of the Liability Convention not result in full reimbursement, as beyond the cap of obligatory insurance it depends on the circumstances to what extent the licensee might still be able to reimburse.
That is different again for the remainder of national space laws at issue. Although also in *Australia*[48], the *United States*[49], *South Korea*[50], *France*[51], the *Netherlands*[52] and *Austria*[53] insurance for third-party liability is obligatory, here the insurance cap is equivalent to the cap on the applicable reimbursement obligations, most relevant clauses actually addressing the two elements together.

5 Scoping the Licensing Requirement: Territorial, Personal or Otherwise?

A third, more general policy issue relates to the scope of the licensing requirement *ratione personae oc territoriae*, and the attendant reimbursement and insurance obligations – upon *whom* is the state concerned going to impose these requirements and obligations? In the absence of any clear guidance on what "*national* activities in outer space (…) carried on (…) by non-governmental entities" means so as to require "authorization and continuing supervision" by the states concerned,[54] individual states have picked their own approach regarding how to scope their licensing regimes.

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44 See Art. 25, esp. (1), Russian Law on Space Activities.
45 See Art. 24, Ukrainian Law on Space Activities.
46 See Art. 9, Brazilian Administrative Edict.
47 No indication however is given of the size of the cap, or even of any methodology for calculating it.
48 Cf. e.g. Sec. 69(3), Australian Space Activities Act, as far as the launch permit is concerned.
49 See Sec. 70112, US Commercial Space Launch Act.
50 Cf. Artt. 14, 15, Korean Space Development Promotion Act.
51 See Art. 6, *juncto* Artt. 13-17, French Law on Space Operations.
52 See Secc. 3(4), 12, Dutch Space Law.
53 See §§ 4(7), 11, Austrian Outer Space Act.
54 Art. VI, Outer Space Treaty; emphasis added.

The relevant acts of the *United Kingdom*[55] and *Hong Kong*[56] apply the respective requirement to obtain a license, including notably the reimbursement- and insurance-related obligations discussed above, to nationals only. It may be noted here, that of course the nationality of natural or juridical persons undertaking certain activities represents one of the universally-recognised bases for the exercise of jurisdiction by a particular state – this is the so-called 'personal jurisdiction'.

By contrast, under the *Australian* national act, a launch permit (or exemption certificate), authorisation or space license are required for, respectively, launching from Australian territory or returning to Australia of a space object launched from Australia, return of Australia of a space object launched outside of Australia, or operating a launch facility in Australia.[57] Like Australia, the national licensing regime established by *Brazil* under its Administrative Edict deals with launching activities *only* – and in the same fashion as Australia, it applies that regime only to "launching activities on Brazilian territory".[58]

It may be noted, of course, that the so-called 'territorial jurisdiction', the right of a sovereign state to rule over activities conducted on or from its territory, presents the other universally-recognised basis for exercising jurisdiction. It should further be noted, that for launch activities in particular the exercise of territorial jurisdiction is appropriate, in that the most unequivocal and undisputed criterion for becoming a launching state under the Liability Convention is that of use of the state's territory for the launch at issue.[59]

In the case of *Sweden*[60], *Russia*[61], and the *Ukraine*[62] *both* territorial and personal jurisdiction are applied in determining the principled scope of the act – and applied in a principled manned to *all* kinds of space activities, not just to

55 See Sec. 2(1), UK Outer Space Act; Sec. 2(2) defines "United Kingdom national" for the purpose, whereas Sec. 2(3) allows for extension of application of the Act to legal entities incorporated in the Channel Islands, the Isle of Man and other dependent territories.

56 See Sec. 5(1), Hong Kong Outer Space Ordinance, allowing the Hong Kong authorities to "grant a licence in respect of activities to which this Ordinance applies to a body corporate incorporated under the laws of Hong Kong".

57 See, resp., Secc. 12-13, 14, 15, Australian Space Activities Act.

58 Art. 2, Brazilian Administrative Edict.

59 See Art. I(c), sub (ii), Liability Convention.

60 See Sec. 2, Swedish Act on Space Activities.

61 See Art. 1(1), Russian Law on Space Activities. As further corroborated by other relevant clauses in the Law such as in Artt. 3-6, the phrase "space activities under the jurisdiction of the Russian Federation" comprises both territorial and personal jurisdiction.

62 See Art. 10, Ukrainian Law on Space Activities: "[a]ny subjects of space activity which carry out or intend to carry out such activity in the Ukraine or, under jurisdiction of the Ukraine, abroad should obtain license in the National Space Agency of the Ukraine for the rights to carry out such activity".

launchings. In the latter two cases, in addition the respective licensing regimes are applied to space objects duly registered with the two governments, in the case of *Russia* explicitly,[63] in the case of the *Ukraine* as implied by the use of the term "jurisdiction".[64]

Other countries have still more sophisticated (or complicated, depending upon one's perspective) approaches to applying their licensing obligations, for example for the purpose of taking into account the possibility that particular space activities targeted by their national space laws may already be subject to licensing obligations imposed by other states.

Focusing on launching only along the lines of Australia and Brazil, *South Korea* has thus imposed its licensing regime on any launch activity conducted on its territory or facilities otherwise under its jurisdiction, and in addition any launch activity elsewhere involving "a launch vehicle owned by the Government or a national of the Republic of Korea".[65] This applies also to the *Norwegian* regime, where firstly territorial jurisdiction is extended on a quasi-territorial basis to "Norwegian vessels, aircrafts etc.", and secondly may be applied in "[a]reas that are not subject to the sovereignty of any state, when the launching is undertaken by a Norwegian citizen or person with habitual residence in Norway" – in other words, on the basis of territorial and quasi-territorial, and occasionally personal jurisdiction.[66]

Belgium and the *Netherlands* apply similar approaches, covering territorial activities in full and activities by nationals in certain circumstances only – but then to *all* space activities, not just launching. In addition to applying a territorial and quasi-territorial approach in a comprehensive manner the *Belgian* space law states: "[w]hen provided for under an international agreement, this law may apply to the activities referred to under indent 1 and carried out by natural or legal persons of Belgian nationality, irrespective of the location where such activities are carried out".[67]

The *Dutch* space law in turn, while *ipso facto* obliging a license for those operating "in or from within the Netherlands or else on or from a Dutch ship or Dutch aircraft", allows such obligations to be extended by specific regulation to "(a) designated space activities that are performed by a Dutch natural or juridical person on or from the territory of a State that is not party to the Outer Space Treaty or on or from a ship or aircraft that falls under the jurisdiction of a State that is not party to the Outer Space Treaty; (b) the organization of outer-space activities by a natural or juridical person from within the Netherlands".[68]

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63 See Art. 17(2), Russian Law on Space Activities.
64 Cf. Art. 10, Ukrainian Law on Space Activities.
65 Art. 11(1)(b), Korean Space Development Promotion Act.
66 Sec. 1(b), resp. (c), Norwegian Act on Launching.
67 Art. 2(2), Belgian Space Law; "indent 1" refers to "the activities of launching, flight operations and guidance of space objects".
68 Sec. 2(1), resp. (2), Dutch Space Law.

Finally, whilst also applying the licensing obligation to all space activities, three states in doing so at a second level then nevertheless make a fundamental distinction between launching and other space activities. The *United States* does so even by way of three distinct sets of regulation, two of which (excluding the regime handling commercial satellite communications) have only recently been consolidated in one Title of the United States Code.[69]

The US Commercial Space Launch Act as amended applies to launches conducted from US territory, from elsewhere by US nationals as defined, as well as by US nationals "outside the United States and outside the territory of a foreign country unless there is an agreement between the United States Government and the government of the foreign country providing that the government of the foreign country has jurisdiction over the launch or operation or reentry", alternatively "in the territory of a foreign country if there is an agreement between the United States Government and the government of the foreign country providing that the United States Government has jurisdiction over the launch or operation or reentry".[70]

As for communications, the 1934 Communications Act provided for a licensing obligation for anyone intending to "use or operate any apparatus for the transmission of energy or communications or signals by radio" from anywhere in the United States, including from "any vessel or aircraft of the United States (…) or (…) any other mobile stations within the jurisdiction of the United States".[71] This act was formally declared applicable to satellite communications in 1970.[72] In other words: territorial and quasi-territorial jurisdiction applies to private communications activities, including if using satellites, but no personal jurisdiction as such.[73]

The third area of space activities specifically regulated by the United States for the purpose of private commercial involvement, that of satellite remote sensing, saw the 1984 Land Remote-Sensing Commercialization Act being replaced by the 1992 Land Remote Sensing Policy Act. Both Acts, however, applied to the same sets of private remote sensing activities, namely all those undertaken by persons "subject to the jurisdiction or control of the United States".[74] Thus,

69 This is Title 51 – National and Commercial Space Programs.

70 Sec. 70104(a)(3), resp. (4), US Commercial Space Launch Act; now codified as Subtitle VII of 51 U.S.C.

71 Sec. 301, Communications Act, 19 June 1934; 47 U.S.C. 151 (1988); 48 Stat. 1064.

72 As per Communications Satellite Facilities, *First Report and Order*, 22 FCC 2d 86 (1970), Appendix C, p. 1.

73 Viewed in context, the reference to 'jurisdiction' here should be deemed to refer to 'territorial jurisdiction' only.

74 Sec. 402(a), Land Remote-Sensing Commercialization Act, Public Law 98-365, 98th Congress, H.R. 5155, 17 July 1984; 98 Stat. 451; *Space Law – Basic Legal Documents*, E.III.4; resp. Sec. 5622(a), Land Remote Sensing Policy Act, Public Law 102-555, 102nd Congress, H.R. 6133, 28 October 1992; 15 U.S.C. 5601; 106 Stat. 4163. Now codified as Subtitle VI of 51 U.S.C.

different from satellite communications, both territorial and personal jurisdiction of the United States are applied here,[75] whereas the reference to "control" in addition has been explained to refer to fundamental connections of the activities at issue with the United States, such as the use of US launchers or US ground stations, or substantial data marketing activities in the United States.
South Africa and *France* in their national space acts take a more simply bifurcated approach, addressing launching – partly in view of its liability implications under the Liability Convention – as separate from all other space activities in terms of the extent to which jurisdiction is exercised for the purpose of licensing.
As to the *South African* act, it provides that those interested in undertaking launch activities "from the territory of the Republic" or "from the territory of another state by or on behalf of a juristic person incorporated or registered in the Republic" require a license – in other words, those falling within either the territorial or the personal jurisdiction (or both) of the Republic of South Africa.[76] By contrast, only "the participation *by any juristic person incorporated or registered in the Republic*, in space activities - (i) entailing obligations to the State in terms of international conventions, treaties or agreements entered into or ratified by the Government of the Republic; or (ii) which may affect national interests" requires a license under the Act[77] – albeit that a safety clause could potentially extend this obligation also to foreign entities undertaking such activities from South African territory.[78]
As for *France*, lastly, with respect to launch activities the national law provides that any operator, whatever its nationality, who wants to proceed with launch activities from French soil as well as any French operator to undertake such activities from elsewhere require the authorisation prescribed.[79] The additional reference to means or facilities falling under French jurisdiction furthermore stretches the applicability of jurisdiction so as to also include quasi-territorial jurisdiction. With respect to the procurement of the launch of a space object or activities with any such object in outer space, such an authorisation is prescribed only for natural and juridical persons of French nationality.[80]

6. 'Flags of Convenience' in Space Law: Is There a Need for Action?

The above analyses have demonstrated that the dozen or so existing national space laws handling private involvement in space activities, notably their

75 Viewed in context, here the reference to 'jurisdiction' should be deemed to refer to both 'territorial jurisdiction' and 'personal jurisdiction'.
76 Sec. 11(1)(a), resp. (b), South African Space Affairs Act.
77 Sec. 11(1)(d), South African Space Affairs Act; emphasis added.
78 See Sec. 11(1)(e), referring to "any other space or space-related activities prescribed by the Minister".
79 See Art. 2(1), resp. (2), French Law on Space Operations.
80 See Art. 2(3), French Law on Space Operations.

liability- and insurance-related consequences, have so far done so in varying fashion. To start with in theory, that might lead to certain (prospective) operators making a rather judicious choice regarding which regime they might wish to be licensed under, as presenting them with the least-costly set of obligations, requirements and standards – in other words, seeking a 'flag of convenience' to operate under.

This would assume of course, that such operators would not even prefer to operate from jurisdictions – including in terms of registration and headquartering, read nationality, of the actually operating company – where as of yet *no* licensing system has been developed specifically for private space activities, and hence no dedicated reimbursement or insurance obligations exist.

Whilst, however, *prima facie* that might seem to be an attractive option, any operator following such route should realise that, if causing damage covered by the Liability Convention and their government being consequently responsible and/or liable at the international level, such a government would in view of the specifics of the space sector and the likely enormous damages involved try to use every legal tool (such as general tort law, due diligence or wrongful act concepts) at its disposal to have international claims reimbursed after all – without any of the legal transparency and clarity that a license would have provided.

Of course, from the mere fact that national laws and licensing regimes are different it can not automatically be concluded that there is a risk in practice for 'flags of convenience' in outer space to become a real problem, so as to require or justify substantial efforts to deal with it for example at the UN level.

Firstly, the fact that – different from ships – space objects launched on the register of one state would be likely first and most of all to harm the state of launch would contradict such a conclusion, as this would seem to present a powerful incentive – much more so than with maritime activities – for states serving as registration states to make sure themselves that appropriate safety and other relevant standards and requirements will be applied. Labour standards from such a perspective definitively form part of such requirements, in view of the highly-technical nature of most, if not indeed all, space activities.

Secondly, the practice at the national level seems to be relatively coherent in terms of especially the liability-reimbursement issue, presumably the most visible and certainly the most quantifiable one. Whilst some states do indeed cap reimbursement, they would seem to do so at roughly comparable levels (in particular within Europe, with the figure of € 60,000,000 figuring prominently), and whilst other states proceed on the assumption of unlimited reimbursement, most of those do have options either statutorily defined or *de facto* available in individual licenses to provide for caps on reimbursement. It would require more extended analysis of licenses granted under those regimes before a final answer could be provided here, but the general framework character of those national space laws allows for sufficient flexibility from this perspective to make it difficult to arrive at any conclusion that some of these laws are very fundamentally and critically at odds with others.

Thirdly, in a sense the international liability issues in space law have been taken care of in a manner likely to – again – provide incentives to relevant states to be much more careful before serving as (cheap) launching and registration states[81] than in the maritime context. The 'beauty' of the Liability Convention from this perspective lies in the comprehensive system of state liability for privately caused damage, which makes it a problem for the launching state(s) rather than the victims if private operators are not made subject to licensing requirements with a certain rigorousness to them. The temptation to become a 'flag of convenience' might well be checked by these inherent self-interests in the safety of space activities conducted under one's *aegis*.

On the other hand, at a second level more divergence can be discerned which could eventually lead to a distorting impact on the space sector. As long as damage caused by and/or to space activities remains a rather unique event, the lack of standard obligations to insurance may not be too bothersome – in particular in view of the aforementioned beauty of the Liability Convention, guaranteeing to victims that the deepest pockets of the states would be available for compensating their damage. Once that, however, would start to change – for instance as a consequence of the infamous cascade effect in terms of space debris – it may lead to some states being surprised by a huge claim not easily recoverable from the actual perpetrator, even if licensed and under an obligation to reimburse.

Also the increasing possibilities to launch from different territories and facilities than the national one – still leading to liability under the Liability Convention! – may raise the risk of safety arrangements somehow falling in between the cracks. Although ultimately appropriately taken care of primarily through US licensing, the case of Sea Launch, where the launching platform and control ship originally were licensed in Liberia – as a consequence, in other words, of the existence of 'flags of convenience' in the maritime sector! – already should provide a warning sign in this context.

It is noteworthy, moreover, that the liability system is always a less direct route to enhancing safety than that of *a priori* certification and/or the imposition of other specific safety-related requirements and introduction of relevant standards – which are, so far, comprehensively lacking (with the aforementioned exceptions of the general clauses in the domestic Russian and Ukrainian statutes. Both these effects and the existing divergence itself moreover, will be further aggravated by the involvement of more and more states and more and more private operators in space activities. The larger the number of states which would become involved, the larger the chance that one of them will be tempted to ignore the arguments against cheapening one's flag, will for short term gain be prepared to take some risk – and such 'competition' for business might then indeed drive down the standards.

81 It should of course be noted that the registration state of a space object is by definition the launching state of that space object or one of the launching states, in case more than one state qualifies as such; cf. Artt. II, Registration Convention.

The risk of 'flags of convenience' on the horizon, though perhaps not immediately visible, is thus likely to increase or already increasing, which would then be further compounded by the legal complexities and inconsistencies stemming from the lack of commonly accepted definitions of such key concepts as "national activities"[82] and "procur[ing] the launch of a space object"[83].
The first determines the scope of the attendant obligation to authorize and continuously supervise such activities if conducted by private actors – and as seen in the above, states have applied this to actors in a variety of combinations of territoriality, quasi-territoriality and nationality of the actors. The second has equally led to a rather large variety of level of involvement of states in the launch of a space object triggering appropriate licensing and the related liability reimbursement- and insurance-obligations.[84]
The consequence of these uncertainties in the context of the present discussion might be in particular that states not yet having any national space law-*cum*-licensing system in place, in the absence of clear and more or less uniform guidance on how to precisely scope such regimes might not realise the importance of doing just that. Such precise scoping is important in order to, on the one hand, not leave any category of private space activities potentially giving rise to its liability being invoked on the international level uncovered by reimbursement and insurance obligations. On the other hand, it is important not cover more than is strictly necessary – as precisely such coverage may lead to victims considering the state in question to have accepted responsibility and/or liability, and to such considerations carrying the day in court or arbitral proceedings.
From this perspective finally the arguments *against* concluding there is a need for addressing the issue of 'flags of convenience' – *'there is not that much discrepancy amongst applicable licensing regimes, and none of them currently could be said to amount to a 'cheap flag"* – could also be viewed as arguments *in favour* of undertaking action in this context now. They would certainly sit well also with the fundamental premise that space activities "shall be carried out for the benefit and in the interests of all countries", as required by Article I of the Outer Space Treaty and nowadays increasingly given shape through the concept of 'sustainable development': establishing an appropriate regime *now* could go a considerable way to ensuring that outer space will not be 'wasted' by commercial entrepreneurs operating under cheap flags in the future.
Installing international rules precluding or at least minimising the appearance of 'flags of convenience' in outer space in the future is so much more feasible when there are no such flags yet – no vested interests would be harmed by the establishment of such a rule. On the contrary, the states so far behaving so

82 Ref. Art. VI, Outer Space Treaty.
83 Ref. Art. I(c), sub (i), Liability Convention.
84 This issue has not been further analyzed in the present paper, but it may already be pointed out here that only three of the space acts discussed explicitly refer to 'procurement' of a launch as triggering the applicability of the respective licensing systems: the UK Outer Space Act (see Sec. 1(a)), the Hong Kong Outer Space Ordinance (see Sec. 3(a)) and the French Law on Space Operations (see Art. 2(3)).

responsibly as to create a licensing system would even have a vested interest in ensuring that others would not undercut such a system. The case of Antarctica – not accidentally a realm often compared legally with outer space – proves that this reasoning may well result in a high level of protection of general public interests in the area concerned.

After all, with more and more states becoming involved in the opportunities for launching from a state different from one's own, the risk of one of them being tempted to become a 'cheap flag' also increases. Space debris is an issue high on the agenda these days, not likely to go away soon, and one important element of combating it lies in guaranteeing the safety of launches – principally through national space laws and licensing regimes. Properly ensuring that space activities would not be allowed to undercut the on-going and increasing efforts in this area for short-term gain would certainly require precluding 'flags of convenience' ever to arise in outer space.

In terms of substance in particular, harmonisation of national space laws and licensing regimes may not be feasible or practicable – and indeed, for example differences in domestic legal standards and approaches, differences between thinly populated potential launch areas such as Australia and more densely populated potential launch areas such as in the United States, differences between specific interests in promoting certain space activities as compared to others, and differences between legal systems in broad terms all are informing and will continue to inform the sovereign right of states to implement relevant international obligations accordingly.

However, in tandem with a need to continue to undertake efforts to clarify the uncertainties surrounding the precise scope of some of those international obligations, a careful and well-considered approach to prevent future 'flags of convenience' from ever arising in outer space would be well worth the effort. In particular it is suggested to somehow include, at the international level, an 'outer space version' of the genuine link concept into international space law, starting out from simply copying and pasting the relevant clauses in the law of the sea conventions: "*Each State shall fix the conditions for the grant of its registration to space objects. There must exist a genuine link between the State and the space object; in particular, the State must effectively exercise its jurisdiction and control over space objects registered by it.*" Next, it might be considered to then add: "*In doing so, the State shall in particular ensure due compliance by the operator of the registered space object – preferably by means of a system of authorisation, licensing and supervision – with the applicable rules of international space law.*" After all, is it not always better and less costly to prevent rather than to cure?